

RECORD

F. R. Fosberg

Collection Book

Ms. 76

31155 - 31782

Collection and Field Note Book

No. 26

(January 15, 1950 - February 23, 1950)

(31155 -31782)

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* * *

look up AEL

32039-40

32041 - 52

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look on Rota
map for

loc. of
airstrip

and

Meringa plantation
on road up to
airstrip.

Write her kinds of labels that
it may be necessary to bring
to Dupont for replacing
bad ones, a missing one.

PH, 6.5 soil on lava

7 much

7 ash in canyon

7.5 ash in canyon

Begin with
no. 31155

719 E

F. R. Fosberg

Collection Book

No. 76

31155 - 31782

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and with 31782



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A BOORUM & PEASE PRODUCT

Jan. 15 Mokuape Peninsula,
W. side

Pyramid rock 80° W. of N.

High pt. Moku Manu 47° E. of N.

Site #1 sea level,

flat coral rock

no soil, awash with
sea water, belt about

10 m wide or less. perfectly

flat in general topography

"solution bench" awash
with waves and logs roughness;
almost closed veg.

largely brown algae,

rather unevenly closed,

Sargassum (2 sp.), *Ectocarpus*,

Lithothrix (?), *Padina*,

and another brown alga,

dominants, but in

different proportions

on inner and outer

parts of belt, no place

with more than 3-4

actually dominant.

2 layers, 1-2 cm, other, 4-10

cm.

2-3 m. + strand

Site #2 Flat but rough
coral rock with gravelly
soil in pockets,

mixture of "black sand"

and coral limestone debris

Very sparse stand

of *Sesuvium portulacastrum*

- nanophyll, succulent

leaves, herbaceous stems

1 layer 5 cm. thick

(no associated species except

1 ecological belt | occasional

Heaerola from next

belt above, not enough

to constitute a shrub

layer, even scattered.

Belt about 10-15 m.

wide on limestone

bench just at foot

of steep bluffs

Obviously very frequently
subject to spray.

Jan. 19 Looked around at night. Tried to check occurrences reported in Pac. Is. 3:338-9, 1949. Of the plants seen that were previously reported only *Eleusine indica* deserves any note. It is abundant rather than rare.

31155 *Setaria verticillata* Beauv.
occasional around buildings

56 *Eleusine indica* (L.) Gaertn.
abundant around edges of air strip and around paths.

57 *Pandanus tectorius* Paul.
planted around houses (1 plant)

58 *Nicotiana glauca* Graham
1 plant seen, planted

59 *Coccolobis uvifera* L.
commonly planted around houses

60 *Schinus terebinthifolius* Raddi
planted around houses

unusually robust form, culms spreading from root crown.

small plant 1 m. tall.

shrub 1 1/2 m. tall, leaves pale glaucous green, sub-fleshy; flowers yellow.
sterile shrubs 1-2 m. tall.
sterile shrub 1 m. tall.

Jan. 19 general inspection of islet with attention to vegetation and to species unrecorded from Atoll; changes since 1946.

The island is still barren-looking, though considerably more luxuriant than in 1946. Principal conspicuous vegetation is *Messerschmidia*, average trees of which are 3-4 m. tall. Shrub layer of *Scaevola* (sometimes forming small tree).

Wedelia, *Pluchea indica* ~~taberna~~ (common), *P. odorata* (common locally).

Pioneer herb layer by far the most diversified and widespread - found everywhere around establishments, air strip, etc. Esp. on lagoon beach a sterile grass that must be *Paspalum vaginatum* covers large areas almost exclusively. In the wetter places away from the beach *Cyperus ferox* (?) forms dense patches.

On freshly exposed coral, *Phyllanthus niruri* and *Euphorbia hirta* come up in

Kodachrome roll 1 B + W. roll A.

1-2 growth of *Wedelia biflora* on recently disturbed ground

3-4 *Wedelia biflora* plant

5-6 same, closer.

7-8 ⁴ strip of *Messerschmidia* and *Scaevola* e. of air strip, showing some wind-shear effects.

9-14 ⁵⁻⁷ pioneer vegetation of shallow-rooted plants on new coral rubble surface.

15-16 ⁸ Well-grown *Messerschmidia* grove about center of islet.

great abundance. In most weedy patches *Cenchrus*, *Chloris inflata*, *Cenchrus echinatus*, *Fimbristylis cymosa*.

Conyza canadensis + *C. bonariensis* are common toward av. end.

The lawn of *Cenchrus* is a serious annoyance.

8 1950 Kwajalein Atoll
Marshall Is -

- 31161 *Digitaria pruriens* var. *minoballua*
locally common in waste spots
- 5 62 *Euphorbia heterophylla*
occasional as weed or
garden plant
- 2 63 *Eclipta alba* (L.) Hassk.
edge of marshy weedy place
- 1 64 *Sonchus oleraceus* L.
weedy coral flat near air strip
- 5 65 *Tridax procumbens*
common on weedy coral flat
near air strip
- 5 66 *Euphorbia hypericifolia* L.
occasional on weedy
coral flat near air strip
- 1 67
one vigorous clump on
weedy coral flat near airstrip
- 3 68 *Conyza bonariensis*
common on weedy coral flat
near airstrip
- 5 69 *Conyza canadensis*
occasional on weedy coral flat
near airstrip
- 5 70 *Pluchea odorata*
common, in places abundant,
in vicinity of air strip
- 3 71 *Conyza bonariensis* (L.)
occasional around buildings
- 5 72 *Cyperus ~~per~~ odoratus* L.
abundant in wet places
- 2 73 *Phyllanthus ~~per~~ amarus* Schum. & Th. det. G.
abundant almost everywhere

Kwajalein Islet

9

- erect, bushy herb 1 m.
tall, lower 2/3 of floral
bracts scarlet, distal
third green.
prostrate; rays white.
- erect
- prostrate and branched
at base, scapes ascending,
- erect, tips nodding;
sap milky.
- over 1 m. tall, sterile.
- erect, pappus dull whitish;
flowers white.
- erect, flowers white.
- shrub 2 m. tall,
aromatic; flowers
pinkish white.
flowers white; pappus
whitish.
- caespitose, stems
bluntly triangular.
erect, this tall in
protected spots.

L. Webster
1955

- 31174 *Amaranthus spinosus* L.
occasional in sheltered
moist place
- 76 *Leucaena glauca*
one small shrub seen,
in nursery, probably
planted.
- 77 *Solanum nigrum* L.
weedy edge of nursery plot
- 78 *Amaranthus dubius* Mart.
weedy edge of nursery plot
- 79 *Pluchea indica*
common generally
- 80 *Solanum nigrum* L.
weedy disturbed ground
- 81
planted in nursery
- 82 *Stachytarpheta ~~javanica~~ ^{indica}*
planted in nursery
(but seen elsewhere as weed)
- 83
planted in nursery
- 84 *Leoparia dulcis*
abundant in weedy wet place
- 85 *Amaranthus dubius* Mart.
common locally in coconut grove.
- 86 *Emilia javanica* (Burm.f.) Rob.
common locally in weedy places
- 87 *Chloris inflata*
common or abundant generally
ctd. on p. 14

- erect branched herb,
stems bronzed by
red mottling.
- shrub 1 m. tall, branched.
- tangled bushy herb, ^{stems green;}
berries black, flowers white.
- erect ~~shrub~~ bushy herb
up to ~~1~~ 1 m. tall, stems
reddish. (one branch from
each of two plants on each sheet).
- shrub 1 m. tall;
heads pinkish.
- erect, stems ^{dark} purple, fls. white.
- twining, flowers pinkish
white, unripe pods
deep purple.
- spreading much branched
herb; flowers violet.
- erect, branched herb
6 dm. tall.
- erect, flowers pale
bronze green.
- flowers brick red.

Jan. 20 Darrit, Uliga &
 Dalap Islets, e. end of atoll.
 Vegetation quite luxuriant,
 arborescent.
Pluchea odorata is well
 established on Darrit, in
 places forming greater part
 of shrub layer. *Pluchea*
indica also locally common.
 This and a woody plant
 resembling *Euphorbia*
hypericifolia, and *Chloris*
inflata said by native
 informant Mike, to have
 come with Americans,
 not to have been brought intentionally.

Dalap Islet

- 31191 *Hedyotis bipinna*
 common on weedy airstrip
 92 *Euphorbia ~~hypericifolia~~* prostrata Ait.
 common on weedy airstrip
 93 *Chloris inflata*
 common on weedy airstrip
~~94 *Euphorbia* ~~hypericifolia~~ Islet~~
 94 *Euphorbia*
 local along road in sparse woods, around ~~base~~ installations.
 95 *Pluchea odorata*
 abundant, forming thickets locally
 96 *Pluchea indica*
 common locally
 Uliga Islet, weedy roadside
 97 *Cyperus*
 98 *Physalis*
 99 *Physalis*

same informant gave name
 "kejbar" for *Achrosia parviflora*
 and ~~says~~ said the fruits
 were used as fish-poison
 in old days, also that
 children eat kernels.

Kod. coll. 77-78 *Pluchea*
 Kan coll. 4. 12 *odorata*

Kod. coll. 1 17-20 *Physalis*
 Kan coll. 6 9-11 from air.

prostrate; flowers
 white, plant chlorotic.
 prostrate, purplish
 green, stems red-purple.
 small tufts, racemes
 purplish.

erect, tips arching.
 aromatic
 shrub 2 m. tall, rounded;
 flowers pinkish white.
 shrubs 1 m. tall; heads
 pinkish.

rare in wet place

tangled herb, fls. yellow.

14

1950 Kwajalein atoll
Marshall Is.

(ctd. from p. 12)

31188 *Dactyloctenium aegyptium*
rare, roadside3 89 *Paspalum vaginatum*
abundant in many
places near inner
beach90 *Cyperus*
common very locally in
wet places around airport
buildings

about 17

31200 *Cyperus rotundus* L.
weed in nursery plot, rare

Kwajalein Islet

15

dense spreading
clump.
forming dense
ground-covers.

spreading tufts.

Jan 21

soil in coconut grove p 7-7.5.

Site #1 - north end of island /
Scaevola brush. somewhat
broken. Ipomoea (per. sp.)
ground cover in open spots.
Scaevola & Messerschmidia
considered rosette shrubs.
Ipomoea per. caprae a tree.

Site #2 Coconut plantation
seriously destroyed by war
broken second layer of
Scaevola, Mess. etc.
solid undergrowth of
Wedelia.

Site 3 n. of center of I.
open ground. solid
layer 1-2 m. deep of
Wedelia bipinn.

Site 4 center of I. toward lagoon.
open ground solid
layer 2-4 m. deep of
Ipomoea per. caprae

Site 5 center of I. just inside
windward beach - almost
solid layer of Pisonia m.
1-2 dm. lvs. leathery.

Podochromis ^{will 1} 7-24 Ipomoea per. caprae
Mar. will 4 13
Red. will 1 3-4 1 per. 11
buildings covered by
Wedelia. Ipomoea per. caprae
Ipomoea per. caprae in f.

Rod ^{will 1} 7-23 Jan ^{will 1} 15
Site #2 Wind. p. 7.

Site 6 - wide bare
strip from windward
to lagoon beach,
mostly occupied by
a ~~fine~~ stand of
Fimbristylis cymosa
patches here and there
of Chloris inflata,
between tufts of
Fimbristylis are
plants of Portulaca
samoensis. Wedelia
and esp. Ipomoea per-
caprae are encroaching
from the edges. Part of
the strip is still completely
bare.

Site 7 Forest of Messerschmidia
4-6 m. tall, with some
Pisonia. Undergrowth
largely ~~gone~~ shaded out.

- 31201 *Allophylurus timorensis* (DC.) Bl.
 rare, in Messerschmidia forest
- 5 02 *Chloris inflata*
 common along trails, nowhere
 else except patches in
 open area.
- 3 03
 on moist soil in sheltered
 area.
- 6 04 *Fimbristylis cymosa*
 abundant in large open
 area.

Revegetation on Bigej
 shows some interesting
 tendencies. Most of the
 bare ground has been
 covered either by a dense
 mat of *Ipomoea pes-caprae*
 or by a 1-2 m. deep pure
 stand of *Wedelia biflora*.
 The usual annual weeds
 exist only along trails and
 immediately around houses.
Pluchea odorata, though
 here in 1946, exists only
 as a few half dead bushes
 obviously losing out in
 competition with the
Wedelia. A plant or two
 of *P. indica* still persists
 around buildings.
 A few patches of *Vigna*

shrub 2.5 m. tall,
 almost sterile "kubuk"

in dense clumps,
 leaves somewhat
 stiff.

maing ~~still~~ in
 almost pure stand
 exist.

What was low
 brush of *Messerschmidia*
 almost impenetrable
 in 1946, is now a
 dense forest 5-6 m. tall,
 fairly open beneath.

Some *Wedelia* has
 been there but is now
 dead or almost so.

Coconut trees scattered
 over north $\frac{1}{3}$ show the
 effects of wind and
 spray.

Chloris inflata has
 become common along trail.

Jan. 22 - This islet has been more completely destroyed than any other I have seen. No coconuts left standing, no trees of any size.

at the south and north ends are numbers of *Messerschmidia* 3-5 m. tall. Young *Scaevola* is also common here.

At the south end is some soil, and large patches of *Vigna marina*.

Wedelia biflora in pure stand or *Iperomea per-caprae* in pure stand cover large areas and are the dominant plants over most of the islet.

- 31206 *Pseuderanthemum* ^{*canthensis* Van Canthensis}
 3 planted around buildings
 3 07 *Paspalum vaginatum*
 common in open places on lagoon side, some on outer side.
 3 08 *Pluchea odorata*
 one small colony in open coral flat.
 2 09 *Vernonia cinerea*
 occasional in open places
 5 10 *Pluchea indica*
 abundant in open bare part, unable to compete with *Wedelia*.

except the central section. Apparently continual traffic has compacted the limestone debris into a partially consolidated mass that will scarcely support anything. This ~~se~~ extends over most of the central portion. The center is absolutely bare, except for sparse *Fimbristylis*.

No *Chloris inflata* seen.

Pluchea indica abundant in center section but does not stand up against *Wedelia*. *P. odorata* only one small colony.

shrub 2.5 m. tall, flowers white with purple dots in throat. sterile, forming dense mat.

sterile shrub 2 m. tall.

flowers purple

shrub 1 m. tall; heads pinkish.

22 1950 Kwapalein atoll

- 31211 Polyscias ^{aria}scutellata
planted by building
- 12 Coccoloba uvifera L.
planted by building
- 13 Clerodendrum inerme
in thicket near buildings

The vegetation on the windward side around the buildings at the south end is a low mixture of *Paspalum vaginatum*, *Triumfetta procumbens*, *Vigna marina*, *Ipomoea pes-caprae*, *L. tuba*, *Wedelia*, etc. with patches of *Scaevola*, bushes and small trees of *Messerschmidia*, occasional planted coconuts and *Pandanus*.

There are a scattering of young coconut trees, some already flowering, all over the island except in the center.

Eberys I.

23

- sterile shrub 1.5 m. tall, leaves very concave above.
- sterile shrub 1.3 m. tall.
- scrambling shrub, flowers white with maroon stamens and pistil.

24

1950

Guam

✓ Jan. 24 Anigua, 1/4 mi. e. of
County Jct., w. of Agaña

4 m.

Secondary thicket on base
of limestone cliff. Mixture
of *Leucaena*, *Triphasia*,
Piper, *Carica* & *Heterospatha*
on talus at base of cliff.
Triphasia forms a rather

31214

Piper guahamense
in secondary thicket
on limestone talus

✓ Jan. 24 Ravine of Lower Fonte R.
1/2 mi. s.e. of County Jct. w. of
Agaña

8 m.

thickets on limestone
bluffs - upper story of
scattered *Artocarpus altilis*
10 m. tall. second dense one
of *Leucaena* and *Heterospatha*
5-6 m. tall. Undergrowth
of *Triphasia*, *Pandanus dubius*
and seedling *Heterospatha*.

15 *Heterospatha elata*

common on limestone bluffs

13 M
25

Pan. roll #16 - *Heterospatha*
elata.

impenetrable tangle.
Piper grows with it.
Heterospatha sterile at
this season. occasional
also on cliff above.

shrub 1.5 m. tall,
leaves glossy above,
spikes erect. root has
slightly anaesthetic
quality, somewhat aromatic.

The whole tangled
with lianas of *Ipomoea*
and *Abrus*.

Substratum of rough
limestone outcrop
and boulders.

Pan roll #17 -

Kodach. roll #1 last 5 shots
- *Heterospatha*.

tree 6 m. tall, leaves 2 1/2 m. long,
infl. with green fruit in lower
leaf axils, 3 times branched, light
gray.

✓ Jan. 24 - cliffs near coral pit - vegetation here of brush + low trees, tips of most plants killed, sprouts coming from below. whole has rather brown appearance, almost burned-looking. probably result of salt spray blown from sea below. waves obviously dashed over coastal strip. 115m.

- 31216 *Allophylus*
just below top of limestone cliff
- 5 17 *Chloris radiata* limestone
common at top of cliff
- 1 18 *Hedyotis coccinea*
rare on freshly broken up limestone
- 2 19 *Ipomoea tuba*
common at top of limestone cliff.

Kodachrome roll 2¹⁻⁶ - Typhoon damage to coastal plain vegetation also to trees on top of cliff. *Laportea*, *Cynometra*.

shrub 0.8 m. tall;
- flowers white.
culms ascending to erect.

flowers white,
anthers deep purple.

twiner, leaves dull,
not fleshy, flowers
white, not open in
afternoon.

Jan. 24 Limestone flats
near Coral Rits., just
back of ~~Faguan~~ Point
Fadian Fadian #5 m.

Dense low forest 8-10 m.
tall, much torn by the
typhoon, some trees knocked
down.

Substratum very rough
coral.

Veg. roughly 2 layers,
1 quite mixed tree layer
with Pandanus, Rapanea,
Guettarda, Macaranga,
Intsia, Cynometra, Ficus,
Cerbera(?), Guarnia, etc.

Aglaia none (ex. in places Pandanus
tectarius) abundant enough
to be called dominant.

Macrophyllous.

Shrub layer of
Cycas, Pandanus, Pipturus
Eccarattia, etc. + young
of tree layer. 2-3 m. tall

Cycas most conspicuous
A few vines, as Flagellaria,
etc. Epiphytic ferns
(Pyrosia) on a few trees,
abundant where found.

Aedes (a small sp.) common
and troublesome.

70 m.

- 21220 *Polyscias grandifolia* Volk.
occasional in forest
5 21 *Laportea*
common in forest

- 2 22 *Eragrostis ~~fulva~~*
pioneer on fresh broken
coral limestone in open.
5 23 *Chloris inflata*
pioneer on fresh broken
coral limestone, in open.
5 24 *Corchorus aestuans*
pioneer on fresh broken
coral limestone, in open.

erect ~~scarcely~~ branched shrubs
- 1-7 m. tall, fruit immature.
3 small tree 7 m. tall.
(others seen up to 1 m. diam.)
fruiting inflorescences
with smaller branches
enormously swollen
and fleshy, calyx and
fruit not fleshy.
spreading

erect from decumbent
base.

prostrate herb,
extensively branched,
stems reddish; flowers
yellow, fruit
strongly ⁽⁶⁻¹⁰⁾ winged

✓ Jan. 25 - Agaña Swamp
east of Agaña

A low expanse of
reeds, with occasional
low spots, excavations
and channels with
water in them.

Dominant plant is
Phragmites karla.
Acrostichum aureum common.
Pandanus occasional.
Hibiscus tiliaceus occasional

Conclusively shows that
Phragmites and *Acrostichum*
will grow in fresh
water, and on wet
ground with no standing
water.

31 225 *Dryopteris*
edges of swamp along road,
coral soil.

5 26 *Dryopteris*
around excavation in
swamp.

3 27 *Myriophyllum* ^{sp. nov.}
submerged in water of
channel.

5 28 *Bacopa monnieri*
thick mat in open
trampled place.

Pan roll A 27-28 view from
Kod roll 2 7-8-9 hill near Tinajana

fronds erect, rhizome
just beneath surface.

fronds erect, tips of fertile
pinnules revolute.

some portions of ~~leaves~~
leaves swollen, aerenchymatous.

prostrate; leaves
subfleshy; corollas
lavender.

- 31229 *Sida acuta* L.
5 on abandoned weedy road
in swamp.
- 6 30 *Sida rhombifolia* L. ?
common on abandoned weedy
road in swamp.
- 6 31 *Merremia gemella* (Burm. f.) Hall. f.
occasional on old road
in swamp

✓ Jan. 25 Agaña Spring,
water works.

Large pool of clear
water, bottom covered
with *Potamogeton*,
some *Myriophyllum*,
floating algae being
skimmed off.

- 5 32 *Potamogeton*
dominant on bottom of pool

- 5 33 algae
floating on surface of pool

- 7 34 *Myriophyllum*
rooted in center of
pool, rising to surface

- 35 *Dentella repens*
forming lawn around
pool, 3-5 dm. above water

- 36 *Zelbingia pendula*
planted on dry stone wall

suffrutescent herb
1 m. tall, flowers
orange-yellow.
weak shrub up to 2 m. long,
stems pale gray-green;
flower orange yellow.
prostrate; flowers clear
yellow, anthers white,
curved.

a very few floating
leaves, these plane,
submerged ones small,
crisp, sterile.

lower parts of leaves
swollen, aerenchymatous.

prostrate; flowers white,
lobes slightly dentate;
fruit green.
plant prostrate to
ascending, stems fleshy,
leaves sub-fleshy, maroon below, flowers
magenta.

- 31237 *Lippia nodiflora*
 3 growing around nursery,
 apparently spontaneous

4

- ✓ Jan. 25 Lower Fonte River
 w. of Agaña, s.e. of
 County Jct.
 secondary thickets and
 disturbed places.

- 5 38 *Melochia*
 rare in thicket

- 4 39 *Heliotropium indicum* L.
 occasional on freshly
 disturbed broken coral

- 5 40 *Memecis lidenaea* (^{Burm.} ~~Hall.~~ f.) Hall. f.
 occasional along
 weedy roadside

- 41 *Sesbania ^{cannabina} ~~sesbania~~*
~~*Sesbania indica*~~
 common on freshly
 disturbed broken coral
 along road

prostrate, peduncles
 erect, maroon, corolla
 white.

small tree 5 m. tall,
 leaves gray above;
 flowers deep crimson
 in center, fading
 distally to dull magenta.
 erect, ~~herbaceous~~ herb
 up to 0.8 dm. tall; leaves
 strongly rugose,
 flowers lavender.

prostrate, twining,
 flowers clear yellow,
 calyx lobes with
 projecting folded
 apex; anthers white,
 curved.
 erect, branched herb,
 1-1.5 m. tall, flowers
 yellow, closed,
 articulation, between
 seeds in pod, swollen.

✓ Jan. 21 Agaña Swamp
e. side.

Site 1, meadow with
Panicum purpurascens,
Ipomoea sp. *Cleocharis* sp.
Polygonum + *pusillae*
0.4-1 m tall counting
Cleocharis as one. There
are 2 layers, but the
upper one is only partly
present. could best
be regarded as one,
being grazed by a
few cattle. part also
cult. as taro patches.
Is a belt bet. base of
~~the~~ bluffs and edge of
cane brake. soil black
and peaty. water
table near surface.

Site 2 solid brake of
Phragmites karla
4-5 m. tall, only other
species is a sterile legum-
inous vine that is occasional.
ground a black mud,
water table just below
surface. Obviously
inundated part of
year because lower few
nodes of canes have
abundant roots.

Site 3 same but with
uneven layer of
Hibiscus tiliaceus
6-7 m. tall. Various
other plants mixed in
on higher spots,
water table lower
4± dm. see p. 32.

On roadsides, etc.

Muntingia calabura
is common. also *Sida* spp.

Kod. roll 2 ¹⁰⁻¹¹⁻¹² zonation in swamp
Pan roll A 29-30

31242 Eleocharis

1 abundant in low spots in open part of swamp

3 43 Polygonum

common in open part of swamp

7 44 Ipomoea

abundant in open part of swamp rooted in mud.

45 Aeschynomene

one individual seen in open part of swamp

✓ 46 Spathoglottis

fruit coral full along road.

3 46 Eragrostis pilosa

1 47

1 48 Hedychium

6 49 Mitracarpum hirtum

sterile

stems ~~to~~ 1 m. or more long, prostrate, ascending at tip, flowers white in erect racemes.

stems ascending at tip, flowers purple in throat, fading to white at edges of limb.

shrub 1 m. tall, fls. yellow, banner red, outside except at edges.

culms spreading prostrate, flowers purple, standard white, flowers white.

erect, flowers white.

- ✓ Jan. 27 - Headw. of Fonte R.
brake of *Phragmites*
in bottom of shallow ravine
pure stand of *P. ka-ha*,
dense, almost impenetrable,
water flowing into it
from headward, but
none seen as far as I
entered.

flat area surrounding
this badly wind eroded.
Pennisetum dominant.

- 3/250 *Polygala*
3 common in eroded places
4 51 *Dryopteris*
one small colony on eroded
volcanic soil
5 52 *Dryopteris*
common around edges of
red brake in wet volcanic soil
2 53
desiccating stream bed
in eroded volcanic soil
4 54 *Pennisetum*
dominant plant on
eroded soil
4 55 *Cyperus*
in desiccating depression on
1 56 *Ammania coccinea* Roth.
one plant only in desiccating
depression on volcanic soil.

- 145 m. soil brick red. pH 7.0
wet. deep. 7.1
clay.
along edges of brake
Dryopteris and *Lygodium*
scandens common,
along with weeds
such as *Elephantopus*,
Mimosa, *Leucaena*,
Hyptis capitata etc.

rhizome prostrate, leaves
erect.

rhizome prostrate,
fronds erect, only one
fertile one seen.

erect from very
shortly decumbent base.

small tufts.
volcanic soil.
petal. crimson.

Jan. 28 - Just east of Talofofo Bay
 Looked for Ruppia in
 mouth of small stream.
 found none.

Vegetation beaten down in
 an upstream direction by
 typhoon. Very little foliage
 left.

Kod. roll 2 13-14 Typhoon
 Pan. roll A 31 damage.

✓ Jan. 28 Talofofo River Valley
estuary running several
miles inland.

In lower part bordered
by broad belt of *Phragmites*,
then a belt of *Barringtonia*
racemosa, above by
secondary thickets
and cultivated patches.

Site 1: pure stand of
Phragmites *karla*
3-4 m. tall, rather matted,
on wet ground, probably
flooded by really high
tides.

31257 *Opuntia*

lying in grass by roadside,
tall, erect, branched.

3 39 *Cratogeomys* *indica*
roadside weed

5 59 *Pseudelephantopus* *spicatus*
common weed in clearings

No sign whatever of
Ceratopteris *gandichaudii*

Kod. Roll. 2 13-14 patch of *Albizia*
Pan. roll A 32

Site 2: pure stand of
Barringtonia *racemosa*
about 8-10 m. tall,
rather open beneath,
but with a shrub
layer of young
Barringtonia averaging
about 1 m. tall.

Soil a black mud, channelled
between bases of trees
to depth of about 2 dm.

one branched, others
rather ~~to~~ small and
somewhat shrivelled, but
all rooting. Possibly
discarded from someone's
potted collection, but
a strange place to throw
it.
erect.

erect herb, leaves dark green,
flowers white,

✓ Jan. 29 just S. of Talofofo Bay
30 m.

31240 *Ipomoea bona. nix* !
common along roadside

Kod. Roll. 2 ^{15-17.} Breadfruit Tree
Jan Roll A. 33 damaged by typhoon
wind, flowers white,
already collapsed when collected
shortly before noon.
Leaves rounded to lobed.

Jan. 29 - 1 1/2 mi. n. Inarajan

Jan. 29 - Inarajan

~~Jan. 29~~

Jan. 29 near s. end of I.

Jan. 29 Merizo

Jan. 29 Umataq

Jan. 29 near s. end of I.

Pan. roll A. 34-36 - Erosion
Kod. roll 2 18-23 - scars &
patches of
woods in ravines
in volcanic area.

Pan. roll B - Typhoon damage
Kod. roll 2 - to Nipso

Pan. roll B. Makatag with
Kod. roll 2 plants damaged
by typhoon

Pan. roll B coconut
Kod. roll 2 plantation
damaged by
typhoon.

Pan. roll B Kod. roll 2
Old bell tower
& bay in auxiliary gas
tank outrigger canoe.

Pan. roll B. Kod. roll ²⁺ 3.
views across bay
and up toward mts.
with patches of
forest. Old Camarina
on erosion scar. open
air library, volley ball
game.

Pan. Roll B. Kod. roll 3
Typhoon damage.

✓ Jan. 29 Umatag

Hills of volcanic soil
with Miscanthus
and patches of Gleichenia,
serious erosion scars,
scattered casuarina
and Pandanus trees

3 1261 } Timonius

3 62 } Timonius

scattered shrubs in
open Miscanthus area.

63 Gleichenia

in low + moist area

Hills bet. Merizo + Umatag
have been burned over
some.

Condition of Rhizophora
at south end is rather
surprising. The more
exposed young trees are
apparently completely
dead. How they were killed
is not at all clear.

shrub 1 m. tall; fruit green.
shrub 1 m. tall ~~fruit~~ flower
greenish white, 4-merous.

leaves stiff.

Typhoon damage is of
several sorts

1. Actual breaking and
uprooting of trees.
2. Killing of ^{leaves and} smaller
branches by desiccation
3. Killing of leaves and
smaller branches by salt spray.
4. Killing or severely injuring
of trees + shrubs by
waves of salt water.
5. Cutting away of soil
by waves of salt water
or runoff of fresh water
(very severe in places)

Feb. 1 - View ^{from} ~~from~~ air -
 greater part of northern
 section has been disturbed.
 Primary forest still exists
 in small patches, mostly
 around cliffs and at
 their tops, and a fairly
 large patch in the
 triangle between the
 roads to North Field and
 Northwest Field.

Feb. 1 View of Rota from
 air - forest still exists
 on and near cliffs
 between terraces, and
 on part of the top two
 terraces. Small
 patches beyond air strip.
 All level areas of any
 size seem to have been
 cleared, and most
 of them seem to stay
 cleared. That near
 the airstrip seems to
 be reverting to woody
 vegetation.

Feb. 1 - ~~top~~ ^{Agriogan} View from air
 Top terrace almost
 completely cleared, with
 wind breakers. Second
 largely cleared. Patches
 on others.

Feb. 1 View of Tinian from
 air. Woody vegetation
 coming back in many
 parts.

Low dense belt of
 vegetation at tops of
 cliffs could be
 mistaken for mangrove.

- ✓ Feb. 1 - Kannat Lamlan,
above Magicienne Bay
Thick red soil mixed
with coral debris,
disturbed area
- 31264 *Miscanthus floridulus*
local on steep slope
below road cut
- 5 65 *Indigofera apicata* Forsk.
occasional around
abandoned installations
- 4 66 *Sorghum halepense*
abundant in waste
areas everywhere
at low altitudes
- 3 67 *Psidium guajava* L.
only one plant seen
(said to be kept under
control by an insect)
- 5 68 *Grewia marianensis*
rare, in undergrowth
in rocky place.
- 5 69 *Psychotria mariana*
common in remnant
of woody vegetation
- 4 70 *Pennisetum purpureum*
var. *merkeri*
common in old fields
and thickets.
- 3 71 *Laportea saipanensis*
remnants of old forest
out in open.

75
dense thicket, canes
several m. tall.

low spreading,
rather compact bush,
flowers reddish-orange.

shrub 1 m. tall,
sterile.

shrub 1-1.5 m. tall,
flowers white, ripe
fruit red.
forming small
brakes, culms
up to 3 m. tall, 1.5 cm.
thick, flowering
spikes rare.
large old trees, almost
defoliated, sterile. 7 m. in diam.

31272 *Phaseolus lunatus*
 6 established in abandoned
 field, forming a dense
 blanket over a limited
 area.

73 *Operculina ventricosa*
 common, covering large patches.
 Feb. 1 - Oheai

secondary vegetation

74 *Lesbania ~~lesbania~~ cannabina*
 common as a pioneer on
 bare ground, and where
 moisture is sufficient
 as here at edge of marsh,
 forming a shrub 3-4 m.
 tall, with woody
 stem 6 cm. thick, flowers
 yellow, brownish without,
 in short pendent racemes.

75 *Acacia farnesiana*
 one large plant seen,
 in weedy place.

Feb. 1 - Chalan Kanoa
 waste places, back
 of beach, mostly
 around buildings

wine, flowers white.

large liana, thickly
 blanketing ~~the~~ large
 patches; flower white,
 bracts pale purplish
 green, top of outer layer
 of fruit dehiscent off.

shrub 4 m. tall,
 branched at base;
 flowers orange yellow,
 very fragrant, fruit green.

- 31276 *Chloris radiata*
 5 common along roads
 and ~~in~~ around buildings
- 5 77 *Cyperus*
 common locally
 in wettest places
 on coral debris
- 5 78 *Ficus*
 local, just behind
 beach

Feb. 2 Tanapag
 flat moist ground and
 dry roadsides

- 2 79 *Pluchea indica*
 dry roadside
- 1 80 *Emilia sonchifolia*
 moist ground, rare
- 5 81 *Ammannia coccinea* Rottb.
 moist ground, rare
- 1 82 *Jatropha gossypifolia* L.
 planted along roadside
 as ornamental

Feb. 2 Ohaai
 sparse second growth
 on flat ground

- 6 83 *Melochia*
 occasional

erect tufts

small tree 5 m.
 tall, ripe fruit
 purple-black,
 soft.

shrub 0.5 m. tall

flowers lilac, heads
 pubescent.
 petals lavender-purple.

shrub, 1 m. tall,
 young growth and
 petioles deep maroon,
 glands or hairs green,
 sticky; flowers red.

rounded bush 2.5 m.
 tall, flowers red in center,
 fading to white at ends
 of notched petals.

- ✓ Feb. 3 - South of Garapan
flats of coral sand
just above beach.
31284 *Saccharum spontaneum* L.
6 several clumps in
opening in bush

- ✓ Feb. 3 - Lake Susupe, west
side
slightly brackish lake,
surrounded by casuarina,
with openings with
Paspalum vaginatum.
thickets 3-4 m. tall of
Hibiscus tiliaceus, on edges
7 75 *Scirpus*
in water at edge of lake

Feb. 3 just east of
apetra, 2nd of Saipan
dry flats of coral
sand and gravel.
Extensive uneven
clashes of *Saccharum*
spontaneum.

erect, rather loose
clumps up to 4 m. tall.

Kod. roll 3, Pan roll B.

of these clumps of
Acrostichum aureum,
Clerodendrum inerme, etc.
Scirpus at water's edge,
forming floating mat
at outside edge.

culms terete.

- 31 286 *Mucuna*
at side of road on slope
87 *Chloris inflata*
roadside
5 88 *Chloris virgata*
roadside, common
5 89 *Mimosa invisa* Mart.
roadside, local

Feb. 3 - near As 700
e. of Mt. Tahotchan
roadside in hilly
area

- 5 90 *Buddleia asiatica*
local along road

large vine, flowers pale
- green, fleshy.
spikes purplish.

spikes erect,
- contiguous.
semi-scandent,
tangled, flowers
light purple.

erect shrub 2 m. tall,
flowers white.

- ✓ Feb. 1 South side of
Kagman Peninsula, w. of
Kagman Point 30 m.
Terrace of limestone
becoming exceedingly
dissected toward edge
of cliff.

- 31291 *Bibbia marianensis*
abundant, dominant
in places in scrub on
very rough rock.
- 92 *Callicarpa candicans*
in sheltered places in rough
rock.
- 93 *Jasminum simplicifolium*
common in scrub
- 5 94 *Capparis cordifolia* Lam.
common in scrub near
cliff edge
- 6 95 *Myoporum laetifolium* Koidz.
common in scrub near cliff edge
- 5 96 *Hyptis*
common in openings
back from cliff
- 97 *Emilia sonchifolia* (L.)
rare, one plant seen in
opening away from cliff

Kod. roll 3 end
Pan roll B

low dense brush of
Bibbia, *Scaevola*, *Myoporum*,
Capparis, *Canthium*, *Jasminum*,
Wedelia, with *Cynometra*, *Trema*,
and *Pisonia* away from
edge.

shrub 1.5 m. tall;
flowers white.

low shrub, seriously
cut back by salt spray.
buds purple.

low, semi-scandent
shrub, mostly sterile;
bright green.

tangled suffrutescent
herb, leaves ^{subfleshy}, ray-green,
fls. white, old ones
faded, new ones about
to open at 5 p.m.

prostrate; leaves fleshy,
bright green; flowers
white, odorless or almost so.

erect herb, to 2 m. tall,
highly aromatic; leaves
rugose, flowers pale.

flowers purple

- 31298 *Tricholaena* ^{rufa} ~~repens~~
 4 locally common in
 openings away from cliff
- 1 99 *Vernonia cinerea*
 rare in openings away
 from cliff
- 31300 *Scaevola frutescens* (Mill.) Kr.
 6 common, especially
 near edge of cliff
- 4 01 *Phyllanthus marianensis*
 occasional in scrub
 away from edge of cliff
- 5 02 *Hedyotis albidopunctata* (Mer.) Forst.
 common on bare coral
 roadbed.
- 5 03 ~~Cleistanthus~~ *Callicarpa candicans*
 occasional in scrub
 this one away from edge of cliff.
- 5 04 *Scaevola frutescens* (Mill.) Kr.
 common in scrub ^{near} ~~away~~
 cliff edge.

erect

erect; flowers purple.

low shrub, 1 m. tall,
 leaves somewhat
 fleshy; flowers dull
 purplish-white; fruit
 white, fleshy.
 erect, 1 m. tall.

prostrate; flowers
white.

shrub 1 m. tall;
 flowers purple.

shrub 0.5 m. tall,
 spreading, flowers
 dull purplish, fruit
 white.

✓ Feb. 4th ^{end} Sabanan Raulang, about
1 mi. S. of As Teo

Area of eroded volcanic soil, erosion apparently started by the existence of a military camp. The ~~bedrock~~ bedrock is a porphyry or tuff, white inclusions in a gray matrix, that is ~~eroded~~ ^{weathered} to a clay, even though preserving its structure. The gullies have cut well down into this. The general vegetation where erosion is not apparent is *Miscanthus*. In the eroded areas and the

71305 *Cantharosperrum*
5 common on weedy spots
and roadsides.

5 06 *Lycopodium cernuum* L.
occasional in gullies,
with *Gleichenia*

1 07 *Wikstroemia elliptica*
rare

5 08 *Gleichenia linearis*
common, colonizing
extensive areas on
eroded soil.

200 soil pH red surface soil
recently burned over
5.6
same material 15 cm.
deeper 5.0
weathered parent
rock 5.0

surrounding *Miscanthus*
are many of the normal
~~sabana~~ ^{sabana} ~~plants~~ - *Miscanthus*,
Cheilanthes, *Euphorbia*,
Sphenoclis, *Gleichenia*,
Lycopodium cernuum,
Geniostoma, *Heteropogon*,
etc. also a number
of strand plants,
such as *Scaevola*, *Ipomoea*,
per-capuae, *Desmodium*
~~triflorum~~ *umbellatum*,
etc.

gray pubescent vine;
flowers yellow.

slender sterile shrub
- 1 m. tall.

rhizomes prostrate,
fronds erect.

- 31309 *Myrtella benningseana*
rare, only one small plant
seen in eroded place.
- 10 *Sphenomeris*
common on bare eroded
subsoil and rock
- 11 ~~*Scaevola frutescens* (Mill.) Kr.~~
~~occasional~~
- 11 *Nephrolepis hirsutula*
in bottoms of erosion
gullies with strand plants
- 12 *Scaevola frutescens* (Mill.) Kr.
occasional on eroded area
- 13 *Desmodium umbellatum*
occasional on eroded
ground
- 14 *Cerbera*
occasional on eroded ground
- 15 *Dodonaea viscosa*
occasional on eroded
slopes and in gullies
- 16 *Cantharospermum*
on eroded slope
- 17 *Euphorbia*
on eroded ridge and ~~along~~
Miscanthus
- 18 *Glossogyne tenuifolia*
on eroded ridge
- 19 *Emilia sonchifolia*
on eroded slope
- 20 *Heteropogon contortus*
common on areas that
are not seriously eroded

flowers white.

tufts and small hummocks

erect.

rounded spreading
shrub 1.5 m. tall; flowers
white; fruit white, fleshy.

shrub 1 m. tall, only a
few old dried fruits
still persisting.

shrub with milky
juice.

shrub 2 m. tall, fruit
pale greenish; flowers
green.

prostrate; unusually
hairy.

erect, flowers white.

flowers purple.

- 212-1 *Geniostoma micranthum* var. *glabra*
 same as coded area
 22 *Cheilanthes tenuifolia*
 occasional, especially
 among *Miscanthus*, but
 also (small plants) on bare red clay

Feb. 4 - Unai Laulau Katan
 low coral bluffs along
 shore above beach,
 mostly covered by *Pennisetum*
 and *Banksia*

- 3 22 *Hedyotis albida-punctata* (Merr.)
 in crevices and cavities
 on bare cliff

From here it is obvious
 that along this coast a
 great deal of salt spray
 blows far inland.

Vegetation on cliffs shows
 extreme "wind-shear" effect.
 In late afternoon sun
 the actual spray is

shrub 1 m. tall. flowers
 white.
 erect

on north east side of Kagman Peninsula

3 m.

- Feb. leaves varying in fleshy-ness
 to very thick; flowers
 white, limb patent; fruit
 tending to be fleshy

very visible, blowing
 up over cliffs and inland
 from north east.

- Feb. 5 Chalan Kanoa
 31324 *Taeniophyllum*
 epiphytic on *Artocarpus*
 31324a *Emilia* ^{on the foliage} ~~on sand around~~ ^{houses} back of beach
 Feb. 5 north of Tanapag.
 25 *Panicum purpurascens*
 dominant in low place
 Feb. 5 s. of Puntan Maghi.
 n.w. coast
 secondary vegetation
 mostly weeds and opening
 26 *Trema*
 occasional
 27 *Indigofera tinctoria* L.
 Feb. 5 - Marpa Point (Puntan
 low vegetation on limestone
 flat at top of cliffs 30 m.
 large patches of low
Scaevola frutescens,
~~and~~ *Paspalum vaginatum*
 and *Phyllanthus*.
 28 *Tridax procumbens*
 bare coral roadside
 29 *Clitoria ternatea*
 common in weed patches
 30 *Myoporum bonariense* Koidz.
 on rough coral
 31 *Abutilon* ^{asiaticum var. albescens} ~~indicum~~
 common on rough coral
 32 *Hedyotis albedo-punctata* (Max.) Forb.

roots dull green,
 fleshy; buds green.

on Tanapag Village,
 tangled mass
 2 m. deep.

Pan
 B+W. roll B

granules flattened
 by blast of ammunition
 explosion

low wide-spreading
 rounded tree, stem 2 cm.
 thick, flowers reddish.

(Labaeta) Views of Marpa Cliffs
 from several places
 B+W Roll B+C
 Kod. Roll 4
 also unexploded shell
 with *Passiflora foetida* in bg.

rays yellowish white

tangled vine, ~~staggered~~
 intense blue, with
 termin yellow claw
 prostrate, leaves
 fleshy; flowers white
 with honey like odor, fruit magenta
 low shrub, flowers orange.

leaves fleshy, fls. white.

- 71333 *Carthamus toresianus* Gaud.
 rare on edge of cliff
 74 *Phyllanthus*
 locally abundant
 on rough limestone

357 *Trema*

common tree

Feb. 5 - e. of Marpi cliffs
 open weed patches and
 cane fields, roadside.
 with *Passiflora foetida*
 eroded place in red
 earth with great
 quantities of dead *Achatina*
 shells. Deep red granular-
 sotryoid soil, testing
 about pH 6.5. Few live snails seen.

sterile.

leaves sub-fleshy,
 flowers white.

tree 4 m. tall, leaves
 silvery beneath, fruits green
 Pan roll C
 Kod. roll 4

pictures of dead snail
 shells in gullies of red
 eroded soil.
 also of vegetation above
 showing patches of
Acacia confusa in
 forest.

✓ Feb. 5 - Famuchuluyan Bay
Terrace at top with
thickets of *Albizia* and
Leucaena, patches of
sorghum, fields of sugar cane
Thickets open beneath.
Cliffs with forests of
Cordia, *Barringtonia*, *Phemna*,
Cynometra, *Hernandia*,
Erythrina, etc. tangled
with *Alyxia*, *Abrus*, etc.
Open places with *Pemphis*
and *Bikbia*.

- 5/31336 *Amaranthus*
common at foot of
cliffs at top of beach
- 7 37 *Alyxia toresiana*
common in woods on cliff
- 7 38 *Commelina benghalensis*
local in thickets at
top of cliff around ruined
building
- 5 39 *Blechnum brownii*
common in thicket
- 2 40 *Malvastrum*
one plant seen in thicket

✓ Feb. 5 Puntan Famuchuluyan
s. of Famuchuluyan Bay
Cliffs of gray tuff.

- 41 *Sororia ~~matrella~~ tenuifolia*
common on bare cliffs
- 42 *Cassia*
common at edge of thicket

strand forest at base
on talus and top of gravel
beach of old trees of
Hernandia, *Thespesia*,
Pisonia,
open beneath, with
Thurarea and *Ipomoea*
pes-caprae, these running
out onto beach. *Ipomoea*
seedlings coming up
abundantly on sand
just at top of wave mark.

erect.

vine, fruit black.

stem fleshy

stems erect at tips.

erect, fls. orange.

Let 4 Kod roll 4 - views across bay
Pan roll C / with Isletan magico taking
also view inland
forming a turf

low shrub or subshrub, fls.
yellow, buds green.

1950 Saipan

Feb. 5 Center of island west
of Punta Fanchulutan

At pass Miscanthus
is definitely growing
on almost bare limestone.
Ferns and other things
under Acacia.

Feb. 6 Anatahan

Looks like a cone that
once was much higher but
has had the top blown off,
slightly dissected on
s.w. slopes, less so further
east. Rim & ridges
look grassy, sparse forest
in ravines and on high
peak.

Some wave cutting around
shoreline, resulting in truncated
ridges and in places a very
recent looking sea cliff.

Kod. roll 4 Pan Hall C photos of
barriflers footprints covering
red soil on ammunition
storage depot. also of limestone
peaks, Acacia covered
forests.

✓ Xerox copies

ph. 32-105

142-179

2 Xerox copies

pp. 82 - 105

142 - 179

1950 Saipan

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shoreline, resulting in truncated
ridges and in places a very
recent looking sea cliff.

Roll 4 Pan hall C photos of
Passiflora foetida covering
red soil on ammunition
storage depot. also of limestone
peaks, acacia confusa
forests.

from ~~first~~ 20. of 2.

Feb. 7 - near Salt Lake
w. side of island

ash beds, granular
ash #7-7.5

- 31343 *Hibiscus tiliaceus* L.
common around edges
of salt lake, not seen
to any extent elsewhere
- 44 *Sphenomeris biflora* (Kaulf.) Tagawa
on cut bank in ash
- 45 *Zoysia tenuifolia*
abundant locally
forming a solid cover
- 46 *Polyscias scutellaria* (Burm.) Fock.
planted around old house site
- 47 *Thevetia peruviana*
planted around old house site.
- 48 *Euphorbia hirta* L.
common weed in road
- 49 *Phyllanthus niruri* L. *amarus* Schum.
occasional along road
- 50 *Pennisetum purpureum*
common locally along road
- 51 *Dactyloctenium aegyptium*
common weed along road

Feb 7 ash beds of
isthmus, near harbor;

- flats, somewhat cut
by ravines, covered by *Miscanthus*
- 52 *Cassia occidentalis* L.
occasional along road

Pan roll C - views of Pagan
in early morning
from ship.

Kod roll 4 - various views of
volcanoes, also vegetation
near fresh water lake
and of lake from Mt. C. F.

spreading low tree

caespitose, leaves tending
to be leathery.
forming dense mat.

erect shrub, 2 m. tall,
leaves very conchoidal.
small tree, flowers
yellow.

Th. det.
G.L. Webster
1955

forming dense tangles
spreading tufts

flowers yellow

- 31353 *Eleusine indica* (L.) Gaertn.
rare weed in ravine
- 54 *Desmodium triflorum*
common on bare places
- 55 *Heteropogon contortus*
common on bare ash
- 56 *Crotalaria ~~retusa~~ pallida* Diet.
abundant everywhere
- 57 *Ipomoea batatas*
one small colony
- Feb. 7 - near salt lake (see p. 84)
- 58 *Lathyrus roseus*
common along road,
spreading from planting
at camp
- 59 *Elephantopus mollis*
common generally on ash
- 60 *Jatropha gossypifolia* L.
dominant over large areas
- 61 *Sida rhombifolia* L.
common weed
- 62 *Sida acuta* L.
common weed
- 63 *Amaranthus spinosus* L.
occasional weed

spreading tuft.

prostrate

erect shrub 1-1.5 m. tall,
flowers yellow with
brown lines.
formerly a principal crop here.

flowers white

shrub with fleshy
stems, 1 m. tall, young
growth purplish, hairs
purplish with green
viscid glands; fls. red.
said to have been brought
by Japanese who used the
oil from the seeds as hair
oil for women.

erect herb, 1.3 m. tall.

ascending herb, 0.9 m. long,
fls. orange.

erect herb 1 m. tall.

- 31364 *Euphorbia prostrata*
very common weed in roadbed
2 65 *Portulaca oleracea*
common weed
3 66 *Digitaria ciliaris*
occasional weed in road.
2 67 *Eragrostis ~~amabilis~~ tenella*
common weed generally
on bare soil.

Feb. 7 - flats near landing
ash soil

- 1 68 *Stachytarpheta ~~jamaicensis~~ ^{indica}*
only one plant seen
1 69 *Emilia sonchifolia*
occasional here,
not seen elsewhere on island.

Near the landing and
around the bay to where
the hills come near to the
beach, and across the
broad isthmus or depression
between the two high
parts are extensive flats
covered by ash beds. This
part constitutes the only
extensive agricultural
land on the island outside
the coconut plantations.
The ash is workable and
probably fertile, and
is about neutral in

prostrate

prostrate, bronze green,
fleshy.
culms ascending.
spreading tufts.

flowers blue-lavender,
leaves gray-green.
flowers purple.

reaction. It is granular
in texture and gray,
where fine, almost black.
Agriculturally the principal
difficulty might be water.
Any extensive dry period
might mean crop failure.
A part of the isthmus covered
by lava flows.

Feb. 7 - Fresh Water Lake
lake of brackish water
inside old crater,
surrounded by *Acrostichum*
aureum and *Casuarina*,
on one side is a flat place
with forest of *Trema*,
Casuarina, *Psychotria*,
Ficus sp., *Melanolepis*, *Passiflora*, *Aplasia*,
etc. The *Casuarina* trees

71370 *Psychotria mariana*
common tree in second
story of forest

71 *Trema orientalis* var. *argentea*
commonest tree on island
except *Casuarina*.

72 *Passiflora foetida* var. *hispida*
abundant, climbing
over other vegetation

73 *Grewia crenata*
common in second story of forest

74 *Ananas comosus*
persisting in open ^{wet ground} around
lake.

75 *Alocasia macrochiza*
occasional in wet ground near lake

76 *Colocasia esculenta*
common locally in wet
ground east end of lake

are in poor condition.

tree 5 m. tall, ~~fls~~ stipules
as in Mapourea when
well developed; flowers
white, salverform, ripe
fruit red.

- small rounded tree
5 m. tall, ripe fruit dull
dark reddish.

extensive herbaceous
vine, flowers white
with basal half of
corolla segments deep purple.
fruit orange.

small tree, spreading,
- 4 m. tall, fruit green.
plants sterile reddish
pale green in color.

leaves erect, bright green;
- plants 1 m. tall, ~~flowers~~ purple,
petioles erect, ~~blades~~
blades glaucous, pendent,
dull. plants sterile.

- 31377 *Psychotria mariana*
common in understory
- 78 *Chara zeylanica*
covering lake bottom in 5-8 dm.
of water.
- 79 *Acrostichum aureum* L.
continuous belt around lake
at water level and up to 8 dm.
- 80 ~~*Seplobia thymifolia* Euphorbia prostrata~~
common in path in old village
- 81 *Melanolepis multiplandulosa*
occasional in understory
- 82 *Premna* ~~*obtusifolia* R.Br. (obtusifolia leaves)~~
occasional in understory
- 83 *Operculina umbellata* *ventricosa*
occasional in woods
- 84 *Ficus tinctoria* Forst. var. *neo-claudiana*
common in woods
- 85 *Polypodium scolopendria*
local near edge of lake
~~terr~~ terrestrial.
- 86 *Aglaia mariannensis*
one of commonest trees in forest
- 87 *Cyperus polystachyos*
abundant locally in wet spot
- 88 *Pteris quadriaurea* Retz.
common on walls and
bluffs of partially consolidated
ash or shade.
- 89 *Abrus precatorius*
occasional in forest near lake

- shrub 3 m. tall. flowers
white.
ill-smelling when
freshly taken from water.
clumps, fronds 1-2 m.
long.
- prostrate, purplish.
- occasional in
shrub or small tree,
racemes pendent, dark brown
- shrub 2 m. tall;
flowers green with larger lobes white
great vine, climbing
over vegetation; flowers
white, open at 10:30 a.m.
center yellow.
- tree 6 m. tall; fruit
orange when mature.
fronds sweet, sterile.

small tree 3 m. tall.

vine climbing in bushes,
flowers purplish.

- 31390 *Carica papaya*
occasional in forest
- 2 91 *Nephrolepis hirsutula*
common in forest on ground
- 3 92 *Ficus prolixa* var. *subcordata*
common in forest

Low ^{mucky} ~~peaty~~ soil e. of lake pH 7
sandy ~~gravelly~~ at east
end of lake.

- 3 93 *Ipomoea aquatica*
in low moist ~~peaty~~ ^{mucky} area at east end of lake
- 3 94 *Paspalum conjugatum*
in low moist ~~peaty~~ ^{mucky} area at east end of lake.

Birds:

Saw about half a dozen ducks that may have been Marianas mallards on the fresh water lake. Another reported from the salt water lake. They looked much as I remember mallards, but rather small and with a bright red face. One pair behaved as though they were nesting.

Fairy terns common.

Starlings (?) seen in the trees near lake.

tall single stem, flowers cream white. (fruit of & plant very small).
fronds and rhizome erect.
large banyan, one half leafless and with green fruit, other half leafy. (one leafy twig from another individual)

prostrate, flower pale lavender with purple throat.
stems running, with erect branches

A dark bird with lighter head that flew like a dove, but did not get a good view.

About 15 reef herons over the salt water lake, most of them white.

One kingfisher.

The snails here have unusually thin shells. Possibly due to lack of limestone.

Feb. 7 - same - on ^{the} recent
lava ~~at~~ east ~~end~~ of lake
mostly covered by *Miscanthus*

- 31395 *Hypoxis pectinata*
common locally
- 96 *Ipomoea pes-caprae*
rare, on lava just above lake
- 97 *Cyperus javanicus*
edge of lava, in wet soil pocket
- 98 *Paspalum obiculare*
common on lava in soil pockets
- 99 *Cheilanthes tenuifolia* (Pursh.) Sw.
occasional in crevices on lava
- 31400 *Vernonia cinerea*
common
- 01 *Digitaria ciliaris*
occasional
- 02 *Phyllanthus ~~javanicus~~ marianensis*
common locally

Feb. 8 - AMT. Charlen ~~the~~
spatter cone just east of
lake

rough lava and

Scaevola

03 *Pennisetum* on wall of deep
crevasse, shaded

04 *Glossogyne tenuifolia*
local on lava slope

05 *Cheilanthes tenuifolia* (Pursh.) Sw.
around hot-air vent

06 *Nephrolepis* *insutula*
common on outer slopes
of cone, in crevices

soil pockets on this lava
with fine black soil pH 6.5

erect herb 1.5 m. tall,
aromatic.
prostrate, flowers
purple.

erect

fls. purple.

one plant shrubby,
others almost acaulescent.

Kod. roll 5 views of crater, of
Pan. roll D cone, of lake, of
black lava flow, etc.
of slopes and cliffs around
caldera, with *Miscanthus*, *Casuarina*
fronds erect etc.

rays yellow

- 31407 *Sphenomeris biflora* (Kaulf.) Tagawa
rare on crater rim
- 2 08 *Gleichenia linearis*
one or two tiny colonies inside
rim of crater, plants all young.
- 2 09 *Davallia solida*
on fresh lava flow
just east, one of first colonists
- 2 10 *Nephrolepis himantula*
on fresh lava flow just east.
one of first colonists
- 5 11 *Casuarina equisetifolia* L.
on fresh lava flow, just
east, one of first colonists.
- 1 12 *Chrysopogon aciculata*
marsh beds to east
- 3 12 *Ageratum conyzoides*
common locally on lower slopes
- 2 14 *Melastoma malabathrum*
rare, one plant seen just
below rim.
- 2 15 *Fimbristylis ^{binimensis Nakagata}
~~urakaziana Kuhn.~~*
common on crater rim

Mt. Charlen ~~Mount~~ is a small
dormant cone of scoria east
of the fresh water lake, in the
large caldera occupied ^{at it}
by this lake. it is of ^{material}
of various sizes, covered by
a smooth red hardened crust.
Has a small crater filled
with vegetation. A lava flow
of semi-pahoehoe issued from

fronds erect

forming inat;
scapes erect.
erect, fls

small shrub, flowers
white.

tufts.

its base and flowed to
the lake. This is now covered
by sparse vegetation, mainly
Miscanthus. *Casuarina*
covers the slopes of the cone. Various
vents on the sides, base,
and rim give forth hot gases
but no odor. Between the
flow and cone base is a deep
crevasse.

100 1950 Pagan

- Feb. 7 Pass bet. the two lakes
on walls of compact ash
p. H. 7-7.9, partly shaded.
- 3 1416 ~~Dryopteris~~ *Thelypteris unita*
common
- 3 17 ~~Dryopteris~~ *Thelypteris toresiana*
occasional

- Feb. 8 Lava flow at landing
- 3 18 *Wedelia biflora* v. *argentea*
local

Oct. from p. 79. — From the
base of Mt. Pagan, directly
opposite this, has come
recently, a flow of intensely
black aa lava. It has
only a few plants — *Casuarina*
Nephrolepis & *Davallia nit.*

Pagan is a double complex of
volcanic outlets with a
main high volcano on each
end. On the west end, around
Mt. Pagan, are a series of
secondary vents of various
ages, including an old caldera
occupied, in its lowest part,
by the fresh water lake.

The sides of the main
cones are steep and of loose
material. The top parts
are almost bare, with a
few *Casuarina* (?) trees struggling

Pan roll 0 - view of
east peak of Pagan late
afternoon.

101

rhizome creeping.

spreading tangled herb,
flowers yellow.

on the slopes.

On the lava and ash the main
colonist is *Miscanthus floridulus*,
but *Ficus* (2-4) & *Morinda*
citrifolia are frequent. *Heteropogon*
forms occasional patches. *Trema*
is also here and there, as in
the small crater of Mt. ~~St.~~ Charles.

Feb. 8 - Village - many
plants in cultivation
around village, also
many weeds.

31419

Triumfetta

common in coconut plantation

4

Elephantopus mollis

common in coconut plantation

1

Lida rhombifolia

common weed in coconut plantation

3

Ocimum sanctum L.

commonly cultivated

4

Blechnum brownii

common weed in coconut plantation

3

Passiflora foetida v. hispida

occasional weed in plantation

1

Thesvetia peruviana

cultivated around houses

3

Premna corymbosa

cultivated around houses

1

Acacia farnesiana

cultivated

1

Leaevola ~~foetida~~ ~~truncata~~

cultivated

1

Ipomoea pes-caprae

dominant beach plant

3

Vernonia cinerea

common weed everywhere

1

Alexisine indica (L.) Gaertn.

common weed in village

1

Amaranthus spinosus

common weed

coconuts, papaya, banana, tobacco
lime, mango, terminalia c.
acacia farnesiana, Trema d. v. a.

erect herb, 1 m. tall;
- flowers yellow.
erect, flowers white.

erect herb 0.8 m. tall.

aromatic
erect bushy herb 0.6 m.
tall, bracts purple,
- corolla white.
sprawling herb.

herbaceous vine

shrub 2 m. tall; flowers
yellow.

shrub 3 m. tall, flowers
greenish, ripe fruit black.
- single large bush,
- largely defoliated.

shrub 2 m. tall,
- flowers white

luxuriant vine, spreading
over beach and climbing low cliffs,
- flower purple.

erect, flowers purple

~~erect~~ spreading tufts.

erect herb 0.8 m. tall

- 31433 *Phyllanthus* ^{amarus Schum. & Th.} ~~sp.~~ det. G. L.
 3 common weed in village
 34 *Synedrella nodiflora*
 common weed in village
 and plantation
 35 *Lambertia canadensis*
 cultivated in village
 36 *Malvastrum coromandelianum*
 occasional ^{weed} in village

Webster
1955

erect

erect, flowers yellow.

shrub 2 m. tall

flowers orange-yellow.

Feb. 9



Farallon de Pajaros from N.W.
7 mi. dist.

no detail could be made
out but summit appeared
to be capped with steam.

1950

Minami Iwo Jima

24° 51' N

141° 22' E

Feb. 10



prob. no. 100
no. 100. 100
ascorules & with
act. same base.

Minami Iwo Jima from a little south of east.

abrupt cone of ~~very~~ light-colored ^{and gray} material. Intermittently covered by an umbrella-shaped cloud (or smoke?) (prob. not smoke)

Several large break-off cliffs around basal part. above them. large areas of woody vegetation. Apparently ~~the~~ grass on all parts not covered by woody veg. e.g. some of the more abrupt cliffs and talus filled vertical ravines. Break-off exposures show dark ^{gray} rock, bedded in places. Loose material is a light pinkish tan color or gray. Thin woody veg. clear to summit. Grass may well be Miscanthus. Break-off cliffs abundantly cut by thin vertical dikes.

Woody veg. looks fairly dense. A number of trees change yellow, as though dead with full foliage. Scattered here and there.

Woody vegetation seems to cover all parts that are seasonably stable and not too steep. Grass on lower parts of talus, also on some steep ridges. Light green vegetation, possibly seaweed or moss, prevails on lower talus slopes. No small vegetation.

Chart says active volcano in 1919, but this is doubtful. Capt. says sulfur fumes came from sea to with some time ago. Vegetation does not indicate any evidence of recent activity. There is summit, no evidence of crater.

Kod. roll 5 and roll 6.
Pan. roll D

On ^{south} east side is a black sand beach and at east end place where the cliffs could be climbed. (on s.e. corner.) Landing possible in good weather, but not with boat. ~~west~~ side is more precipitous, with steep hanging valley, and steep boulder beach. Cliffs around base. Hanging valleys (or almost vertical ravine) wooded. Cliffs around base on this side could scarcely be climbed. Northwest side but all cliffs unclimbable, 45° slope above will succeed. Rock ledge. Long shore with rocks to northwest.

2 places on s.w. corner can be climbed, giving access to 2 different cirques, each of which might give access to summit and rest of upper slopes.

Several small caves on s.w. side, high up. S. e. corner has a comb-like ridge. E. side cirque-like, with great talus slope running 1/2 way up, and into gullies.

Middle section - huge bare cliffs. Little woody vegetation on this side except a shrub on extreme left, and a few patches elsewhere.



possible access to upper slopes on n.e. corner. From n.e. trees can be seen on summit, fair-sized ones. No evidence of a crater.

Apparently it would be possible to walk a round the island on the beach except for the south-east corner, where an old ship is on the rocks. Perhaps in really rough weather it would be difficult anywhere on beach.

No good camp sites evident.



few Black & sooty albatross seen near island. Many red-tailed tropic birds.

Curious monolithic shaped cloud swirls (pinnacles), shifting, sometimes almost disappearing, then reappearing, but always maintaining its shape.



No evidence of fresh water seen, but doubtless may be seeps and sea-level springs.

110

1950 Iwojima

Feb. 10



from south

Iunabachi is a rugged mass of bedded material with cliffs and talus. Little vegetation except on talus and a few patches above the cliffs on south side. No trees but some low bush.

Flat part seems grassy from a distance. Some wood, eq. at base of Iunabachi toward flat side.

West side of Iunabachi has almost no vegetation, is cliffs + talus, stained with sulfur.

Large crater on w. side, in much lower to west.

On w. side of flat part are a few scattered trees, mostly grass.

Volcanic material here mainly light colored, one or two outcrops of dark.

111

Kod. roll C.
several views
from S. & W.
Pan roll D & E
several views
from S.
transverse from
west.



w. side Iunabachi

North end seems to have several terraces, etc. when viewed from west.



n. end from W.

Also some rather high cliffs. There seem to be traces of at least 7 or 8 terraces.

Feb. 10

Nod. obs.
Pan. NE

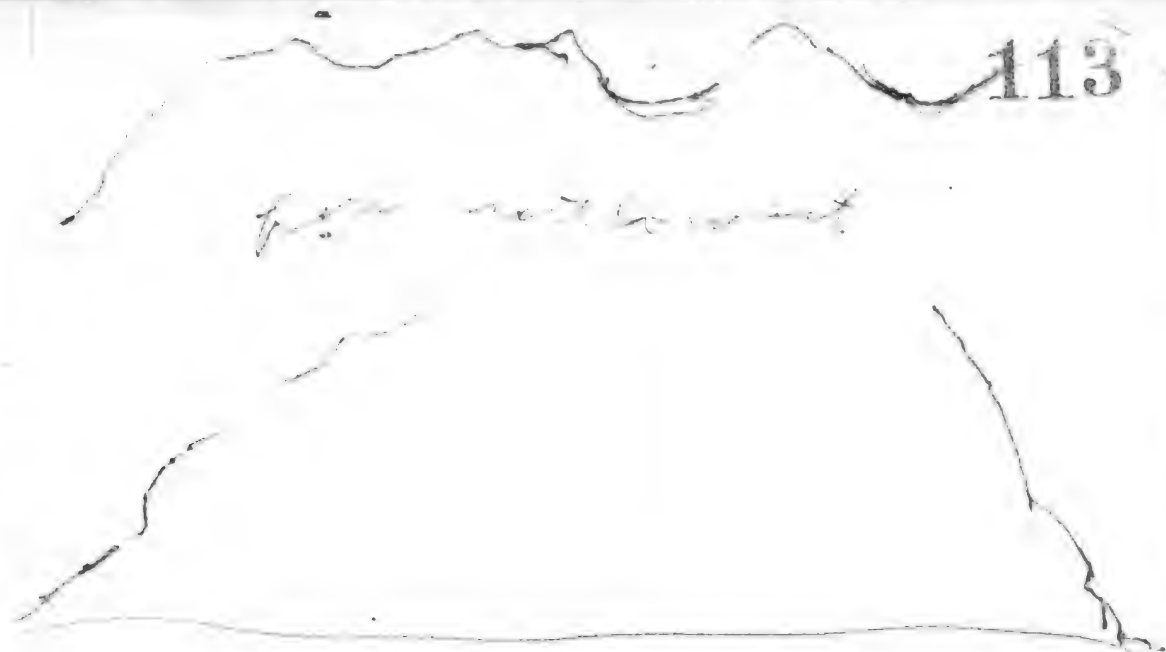
View from south

Made up of bedded dark red-brown and red-gray material probably mostly tuff.

Break-off cliffs and talus slopes common. Age of talus and cliffs may be estimated by amount of vegetation developed on them.

Several conspicuous very steep hanging valleys on west side. Woody vegetation very well developed in these and on all ^{upper} slopes visible. Steeper places and some talus slopes grass covered but these not prominent. Grass and some green woody (?) veg. on ledges on cliffs. Broad-leaved veg. apparently developed almost as soon as grass on basal talus, later these slopes become wooded.

North slope precipitous, extremely wooded.
North ~~East~~ slopes moderate steep, way up, considerable grass, as well as woods.
East slope steep with high cliffs at base. Slope wooded, cliff base: grass on talus at base.



View from west

In general the island is well wooded.

North slope has a long serrated ridge ending in a cliff.

Basal cliffs around north and west and south sides, talus at base, rocky beaches all around, ^{these sides} on n.n. side ~~large~~ deep valley cut almost to base-level. Various places seem climbable.

Same sort of umbrella-shaped cloud as on Manami but denser and larger, upper fourth ^{of island} not visible.

O.n.n.e. side is a gently sloping shelf with steeper slopes above it. Pre-war village could have been here.

Feb. 11. north side of Mt.

back of Camera 70 m. alt.

thicket, and wind breaks
and openings on slopes.31437 *Elaeagnus*

several plants on bushy slope

38 *Rubus*

local on bushy slope by trail

39 *Athyrium*?

local in small ravine

40 *Casuarina equisetifolia*

common on slopes, forming thickets

41 *Acacia confusa* var.

occasional in thickets

42 *Pinus*

common in patches and rows

43 *Pteris*occasional in shade of
great boulders44 *Dryopteris*

occasional in shade of great boulders

45 *Boehmeria*

common in bushy patches

46 *Lambucus*rare on ~~flat~~ hill covered
by great boulders47 *Trema orientalis* var. *argentea*

common everywhere, this plant on rocky hilltop. (all seen sterile)

clay soil from decomposed
volcanic tuff (and a green
rock).tangled
shrub 2 m. tall, fruit
turning orange.low semi-decandent shrub;
flowers large, white.rhizome erect, short,
of wood 2 m. to 1.5 m. long;two extra pieces with
each specimen from different
plants.

small tree 6 m. tall;

said to ~~be~~ have been imported

by Japanese and called "American pine".

small tree 5 m. tall, sterile.

tree 15 m. tall, 3 dm. thick.

cones on ground beneath, said

to have been brought by Japanese
and called "Shinawa pine".

fronds arching.

shrub 1.5 m. tall, fruit
old and shabby.shrub 1.5 m. tall,
mostly dead.

young tree 4 m. tall, sterile.

- 71443 *Oplismenus hirtellus*
between great boulders hilltop
- 5 49 *Pouteria*
common on hilltop of great rocks
- 1 50 *Gnaphalium purpureum*
in tiny soil pockets on top
of great boulder
- 3 51 *Ardisia*
common tree on hilltop
of great boulders.
- 5 52 *Psilotum nudum*
one small colony on top
of great boulder
- 3 53 *Adiantum*
Very common, especially
on rocky places.
- 2 54 *Cinnamomum ^{japonicum Sieb. det.} ~~camphora~~*
common in thickets, this
one on rocky hilltop
- 6 55 *Celastrus*
occasional on rocky hilltop
- 5 56 *Ardisia sieboldii?* det. Walther
common on rocky hilltop
- 5 57 *Piper*
common on rocky hilltop
- 5 58 *Celtis*
common tree on rocky hilltop
- 3 59 *Mucuna gigantea*
common on rocky hilltop
- 1 60 *Calophyllum inophyllum*
common, planted for windbreaks

- stems elongate prostrate,
ascending at tips.
- tree 3 m. tall, sap milky,
leaves dull green, top, inner smooth.
- tree 4 m. tall, fruiting
heavily. fruit green.
- plants erect.
- woody vine, extensively
winning; sap milky; fruit red.
- tree 5 m. tall, a corollate,
in bud only, rarely so.
- tree 6 m. tall, spreading,
sap milky, fruit yellow
and fleshy when ripe, in pairs.
- tree 3 m. tall, fruit green.
- vine, rooting at nodes,
flower spikes extremely young.
- tree 6 m. tall, leaves
paler beneath, fruit green.
- woody vine climbing in
trees; flower clusters on old
wood on lower leafless part of vine;
flowers pale green.
- tree 7 m. tall, densely leafy.
"tamano".

31461

3

occasional on bushy slopes

62 *Ficus*

occasional in old windbreak

Feb. 11 - slope back of Camp, around bombed out Japanese installations.

10 m.

4

63 *Lobelia* *nigra* L.

in crevices, in broken concrete

5

64 *Youngia* *japonica*

common in crevices, in broken concrete

7

65 *Cyperus* *altissimus*

common generally

5

66 *Chloris* *radiata*

common in roadway

5

67 *Raphirolepis*?

on small bushy hill, common

5

68 *Hibiscus* *tiliaceus* var.

common on small bushy hill

6

69 *Ficus*

common generally in thickets

Acc. Wilson favored the Japanese cleared the seaward slopes thoroughly and put them under cultivation. Then they found the wind was too strong, so they had to plant windbreaks, for which they used the native *Calophyllum*.

shrub 1.5 m. tall, leaves glaucous beneath; sterile.
shrub 1.5 m. tall; fruit purple on one side.

flowers white.

flowers yellow.

densely caespitose

shrub 2.5 m. tall, leaves leathery somewhat pellucid-reticulate veined.
shrub 3 m. tall, leaves green beneath.

Banyan tree 5 m. tall, spreading, aerial roots numerous, fig turning purplish.

This does not thrive inland where there is no salt spray.
Rhoediscolor used in making medicine by Japanese. Used for "gripes" (stomach cramps?) and for fever in children. Evidently used on a large scale, as they tried to get the Bonin people to plant it.

Feb. 12 - slopes of mountain
back of O. mountain
Dense mixed forest,
in places rather tall
and with little undergrowth,
in other places stunted
and bushy, or even open
and dominated by sedges.
Palms very common.

31470

common, scattered over
whole slope

"cabbage palm", bud
eaten. Leaves used for
thatch in old days. A
roof of them would
last 25-30 years.

71 Wikstroemia
occasional in open
spots in forest

72 are in sparse places in forest

73 rare in sparse places in forest

74 figs
rare in undergrowth
in bushy places

75 Hibiscus
common in more scrubby
forest.

Roll 6

Roll E a few

shots of
vegetation

75-150m.

This area said by Wilson
to have been main-
tained as a preserve by
the Japanese governor, with
cutting only rarely allowed
and then strictly limited.

slender clean trunk
6 m. tall, many leaves,
fruit green (endosperm
hard when ripe); ~~petioles~~
~~without prickles on~~
~~immature trees, but quite~~
prickly when young. (two
leaves with prickly petioles
taken from trees with
trunks 1 and 2 m. tall).
shrub 3.5 m. tall, sterile.
(others seen 5 m. tall).

31470a

31470b

shrub 2 m. tall, flowers
white.
shrub 1.5 m. tall, fruit immature.
(broken shrub, only one seen
with fruit, is go with #31472)
shrub 1.5 m. tall, figs
immature.

tree 7 m. tall, one flower
picked up on ground beneath,
yellow turning red, deep
~~maroon~~ center and stigmas, yellow stamens.

- 3/476 *Gallesia*
occasional in open places
- 2 77 *Eugenia*
common in and around openings
- 4 78 *Smilax*
common around openings
- 5 79 *Hibiscus*
edge of openings, common
- 3 80 *Eugenia*
common in and around opening
- 2 81 *Hibiscus*
in opening
- 5 82 *Raphiolepis*?
common in forest, this plant in bushy second growth
- 3 83 *Pandanus* *P. borinensis* Warb. det G. S. Jones 1968
common, this plant in opening
- 6 84 *Carex*
common on bare or eroded spots and disturbed places in forest
- 5 85 *Raphiolepis*?
common in forest
- 5 86 *Forsteria*
common in forest
- 1 887 *Lehmannia terbenithifolia*
around old fox hole, probably planted

- dense erect clumps,
inflorescence black.
- tree 7 m. tall, fruit
rare, reddish black, glossy.
- tangled vine, spinulose;
leaves glaucous, sterile.
- small rounded tree
- 4 m. tall.
shrub 3 m. tall, fruit
- reddish black, glossy.
- young plant, sterile; shrub
- 2 m. tall.
shrub 3 m. tall (others
much larger); fruit black.
- (in bush) tree 5 m. tall, fruit
green.
- dense tuft, scapes arching.
- shrub 2.5 m. tall, others
seen larger; flowers
- ~~pale~~ pinkish white.
- small tree 4 m. tall,
(others seen much larger)
- fruits erect.
sterile shrub 2 m. tall,
- strong odor when broken.

- 7 same - I am not sure
edge ^{surrounded by} forest on
mountainside.
- 31423 Cyrtanthus
common on cliffs and
lakes in shade
- 3 89 Andropogon
common on top of ridge
- 4 90 Cyrtanthus
common on top of ridge
- 6 91 Fimbristylis
common on top of ridge
- 5 92 Juncus
common, forming
tangles on sides of ridge
- 5 93 ~~Andropogon~~ Anthyllidifolia Lindl.
on top of ridge

The flora of the Bonin Is. is one of the most difficult I have seen from the point of view of knowing whether the plants are native or not. Many of the relationships are with eastern Asia. And it is from there that most of the introduced species were brought by the Japanese. For example, Casuarina may be found almost anywhere except in dense primary forest. Bamboos of several kinds are very widely

- small clumps, culms
spreading
spreading inf to.
- vine; flowers white,
star-like shape, very fragrant.
- prostrate shrub,
flowers white, fragrant.

dispersed and aggressive. Camphor may be found here and there. Citrus also is much at home, and papaya. All of these are a part of the vegetation, yet all were introduced. Tilia nitida (?) and - is very common around O-mura. It was brought by the Japanese. It is called "small leafed gum" while T. macrophylla is called "large leafed gum". Leucaena glauca was brought by the Japanese after they started their fortification. (130)

Feb. 13 - ~~Bininda~~ Bay shore
north of Bininda
Thickets around old building sites

31494

Hibiscus tiliaceus
common, forming thickets,
~~occasional~~, only seen near
bay shore.

Feb. 13 - Mts. around old
radio station east of
Zambesi town ^{about 45 m.}

peaks grassy and eroded,
seaward slopes brushy
or grassy, the shrubs more
dwarfed the more the exposure,
forest in ravine, and

95

Hypolytrum
very common in disturbed
open places, mostly
past fruiting at this season.
this specimen from old roadside ditch.

96

Bidens pilosa L. var.
common in roadway

97

Ficus
occasional in dwarf
forest on ridge.

98

Psidium cattleianum
one plant seen beside road

99

Cyathea
few plants scattered in
terma forest on steep slope

small thicket forming tree.
flower clear yellow with part
of petal exposed in bud red,
center maroon stigmas maroon.
"hau" inner bark used for
cordage in old days.

protected slopes. The
composition much
the same in the
brush and forest.
Roll 6 end Roll 7 first ft. ^{lanes}
Roll E end Roll 1 beginning ^{on n.e.}
side, some vegetation.

forming dense ground
cover, spreading by ~~the~~
stoloniferous roots to
several m. long; leaves, cutting
if not handled carefully.
erect, ray-flowers white,
rather conspicuous.
bushy shrub 2.5 m. tall.

shrub 1 m. tall; fruit
immature.

dried
pinnas
included as
no fresh fruit
seen.

trunk 1.5 m. tall, fronds ^{2.5 m.} long,
scaly at extreme base, stipe 1 m. l.,
thick at base. sp. incl. stipe, basal
pinnas, one central pinna and tip.

- 31500 *Hedyotis*
 grassy exposed ridge near
 ocean, occasional
- 01 *Hedyotis*
 same
- 02 *Hedyotis*
 same
- 03 *Ligustrum*
 common in scrub forest
- 04 *Sphenomeris chinensis* sp. *biflora* (Kaufl.)
 common in bare earth of road cut
- 05 *Hibiscus*
 common in scrub forest

Feb. 17 - Canyon E of Yanketown
 Walls covered by thick brushy
 woods.

- 06 *Laportea*
 occasional along roadside

- 07 *Korthalsella*
 in scrub forest, parasitic on (#31486)

prob. juvenile *P. boninensis* Warb. det. S. John 1968

- 08 *Pandanus*
 common in forest at all altitudes

- 09 *Smilax*
 occasional in scrub

small erect, branching shrub
 1 m. tall, foetid when fruiting
 broken, leaves light green;
 calyx in fruit enlarged.

same

same

shrub 2 m. tall: berries
 purple-black.

Totani +
 Ohba

tufts, leaves somewhat
 leathery.

small tree 4 m. tall,
 flowers clear light yellow,
~~with~~ turning red with
 age (perhaps second day), with
 narrow center and stigmas.
 "mountain hani"

stems reddish below
 flowers white, star-shaped.

joints flattened, plane of
 each branch perpendicular to
 that of parent branch.

(1 in Bish)

tangled vine, fruit yellowish,
 almost globose.

- 31510 *Polystichum*
common on sides of ravine
- 3 11 *Nephrolepis cordifolia*
common on forest floor on
sides of shallow gully
- 4 12 *Salacia?*
occasional in bushy forest
- 3 13 *Wikstroemia*
rare in edge of forest in ravine
- 1 14 *Selaginella*
one tiny colony on wall of ravine
- 8 15 *Korthalsella*
abundant on figuierum
in woods on steep slope; branches
of host drying where heavily infested.
- 8 16 *Smilax*
occasional in brush along
road

from p. 125 Now it forms dense pure
stands in many places, even
in remote areas. Quava
is found here and there
but does not seem very
aggressive. *Eulalia japonica* (?)
is very widespread in
open places, is really the
dominant grass on ridges,
peaks, etc., but is very
difficult to know if native.
It forms a thick but rather
loose mat. Conspicuous

fronds ascending to arching,
glossy; plants tuberiferous.

shrub 2 m. tall; fl. buds
only.

shrub 2 m. tall.

prostrate.

jointed, flattened, ^{leaves of} branches
perpendicular to that of parent
branch.

springy vine forming
tangle, young leaves
glaucous, flowers yellowish
green.

is the abundance of *Byophterum*
calycinum on eroded rocky
peaks and ridges. It is
deep bronze-red, abundantly
flowering. Old sugar
fields still persist with
cane growing and flowering.
Mostly on slopes up to
45°. Now show some
drought symptoms.

Only running water seen
on e. side of bay, two small streams
with a very small flow from
pool to pool. *Gobigina* above dam. (see p. 138)

Feb. 14. Mts. east of bay.

above reservoir

thick forest on steep slopes
and ridges, grassy ridges
mostly on side toward bay
ridges and knolls eroded
and bare, dominated by
Bryophyllum calycinum.

One eroded spot with *begonia*.

31517 *Dodonaea viscosa* L.

one bush on open eroded ridge

2 18 *Cladium*

rare on open ridges and slope

1 19 *Blechnum orientale*

one small colony seen on
eroded place

3 20 *Helaginella*

abundant on eroded spot
on high ridge

1 21 *Pteridium aquilinum* (L.) Kuhn

one ~~small~~ colony seen
in opening in forest on high ridge

5 22 *Ptilotum nudum* (L.) Griseb.

small colony on rotten rock
in forest

3 23 *Leacrola frutescens* (Mill.) Krause

high open ridge, seen almost
everywhere on island, up to
mountain tops, except in forests.

3 24 *Raphiolepis*

common in forests everywhere

Fagindia seen but not
collected as it was sterile.
Tree ferns in occasional
patches, one trunk seen 6 m. tall

Roll of a few shots

175 m.

small, rounded bush 1 m. tall.

red achenes hanging by
threads, small spreading tuft.
rhizome thick, erect.

rosettes, curling when dry.

most plant, dead,
only two ^{green} fronds seen.

shrub 2 m. tall, spreading,
fruiting inflorescence dry,
(only one plant on island
seen in flower, most sterile
or with dry fruit).

shrub 2 m. tall, fls.
pinkish white, fruit
pyriform.

315 25

5

one bush seen in brush on ridge

Feb 14. - slopes and ridges
above large bay on east side
of main bay

steep brushy broken wooded ridges

7

26 *Juniperus*

occasional in brushy places on ridge

3

27 *Juniperus*~~*Juniperus*~~ same

5

28 *Juniperus*

same

2

29 *Ptilosporum*

common generally in woods

5

30 *Elaeagnus*common generally, especially
in brushy places.

5

31 *Cinnamomum camphora*^{local.}
~~occasional~~ in ravine

5

32 *Cinnamomum doederleinii*

common everywhere in woods

det. Katsunuma

2

33 *Pouteria*common everywhere, especially
on ridgesrounded densely branched
bush, fruits reddish green.Roll 7 to end Roll 8 beginning
Roll E to end scenery and
vegetation, mts. & wooded places.♂ small tree 4 m. tall - with
dead top, pendent tips. "spruce"♂ small tree, 3 m. tall, small
branchlets, pendent "spruce"small tree 4 m. tall, branchlets
pendent "spruce", wood of ^{said} ~~tree~~
highly inflammable.tree 5 m. tall, leaves
with undulate margins.All plants seen etc. etc. except
this one which had 1 dry fruit.- a violent shrub, branches
tending to be elongate with
reflexed branchlets; fruits

fleshy orange-red, very fragrant.

Tree 2 m. tall, leaves glaucous
beneath, camphoraceous when
broken; said to have been introduced by
Jap. pers. ^{etc.}- small tree 4 m. tall, odor of
sassafras when broken."sassafras" used for medicinal tea
in old days.- tree 6 m. tall, fruit green,
very rare.

31534

1 common vine everywhere in woods
and on open ridges.

2 35 *Andisia*
common in woods.

3 36 *Ligustrum*
common generally, this sp.
in open bushy place on ridge

2 37 *Fimbristylis*
common on open eroded ridges

3 38 *Carex*
common on open eroded ridges

3 39 *Wikstroemia*
common on bushy ridge
(with #31540)

5 40 *Wikstroemia*
common on bushy ridge
(with #31539)

4 41 *Malilus thunbergii* S. & Z.
common on ridges and in
woods.

1 42 *Mangifera indica*
common in ravines and lower slopes

5 43 *Geniostoma*
rare on bushy ridge

9 44 *Photinia*
very local on bushy wooded ridge

1 { 45
1 { 46
1 { 47 common in woods on ridge
seeds only, picked up under a
tree with quite thorny petioles.
(see #31542)

tough vine, sap milky;
very rarely fruiting.

small tree, fruits turning red.

shrub 1 m. tall (others
seen as small trees); fruit
dark purple.

caespitose, leaves stippling.

caespitose.

shrub 1 m. tall, berries
red. (perhaps young
form of #31596)

tree 4 m. tall (perhaps
is old form of #31534)

shrub 2 m. tall (others
seen as small trees); leaves
glaucous beneath, flowers
pale green (most plants sterile).
dense tree 8 m. tall; flowers
pale greenish.

shrub 2 m. tall, flowers

shrub 3 m. tall; fruit
scarlet
palms with trunks closely
scarred (1-3 cm. apart) becoming
smooth and longitudinally fissured.
Thorniness of petioles extremely
variable from tree to tree, even
slightly on same tree. "cabbage palm"

31543

damp woods (fr data coll p. 13-)

- 49 *Stachytarpheta indica*
lower slopes along road,
in shade but open ground
- 50 *Phyllanthus ~~sinensis~~ debilis* Klein
or Wild.
house site along road
- 51 *Eulalia japonica*
abundant in open places
everywhere, this on roadside
- 52 *Paspalum guajaro*
fairly common
- 53 *Paspalum ~~distans~~ conjugatum*
common locally
- 54 *Digitaria*
common locally on talus and
stone rock slopes
- 55 *Paspalum ~~acutellatum~~*
common locally on talus
and roadside
- 56 *Cassytha filiformis* L.
rare, parasitic on *Oleander*
- 57 *Polypcias*
around old house site

Above waterfall in other stream
in pools were numerous
snails (*Melania*? see preserved material).

Whole island was as far as
I saw, made up of tuff and
volcanic breccia. Weathered
material is rather sharply

stone picked up under sago
palm with smooth petiole.

shrub 1.5 m. tall, erect,
leaves rugose; flowers
deep rich purple.
plant purplish green.

det. G. L.
Webster, 1955

lower shrub.

shrub 1.5 m. tall; sterile.

erect shrub slightly erect.

green, leafless, fruit green,
flesh.
erect shrub 3 m. tall,
sterile, leaves variegated

set off from underlying
rock. Erosion to bedrock is
consequently very common, especially
on peaks, shoulders, knobs, etc.

The general vegetation pattern is rather simple, in the part visited.

1. The lowland - a much altered forest, now composed of *Ficus nitida*, *Hibiscus tiliaceus*, *Handia nana*, *Calophyllum inophyllum*, ^{Mangifera}, etc. now much invaded by *Leucaena glauca* ^{and Casuarina}, etc. Much of this is being cleared for gardens.

The upland forest is a mixed type, with *Raphiolepis*, *Hibiscus*, *Poncetia*, & *Laurus*?, *Ligustrum*, *Cinnamomum*, cabbage palm, *Pandanus*, *Ardisia*, *Occhrosia*, *Terminalia catappa*, ~~*Casuarina*~~ etc. Where this has been opened up it has been invaded by *Cyrtosperma*, *Casuarina*, several bamboos, etc. Where it has been cleared for cultivation, sugar cane is dominant, with occasional windbreaks of *Calophyllum*. Conspicuous stands of *Pines* occupy many ridges, patches, or slopes, etc. Open areas not planted to sugar, as well as exposed, eroded crests, etc. are largely dominated by *Eulalia* (?), and where too bare on this, *Argophyllum*.

Flowering of *Scorodolus* seems to be seasonal, only one track being noticed in flower now. Citrus is common and widespread in forest, esp. around clearings. Bamboo tracks are common. One or two sugar cane dumps seem to approach *S. phanera*. Probably seedlings.

Calycium,

On some high but rather protected slopes a patch of *Cyathea*, usually in the general matrix of the forest. On exposed slopes and crests the forest is dwarfed to a dense scrub, but maintains more or less its own composition.

In eroded opening, several
sedges: *Gahnia?*, *Flombistylis*,
Cyperus, ^{ca. 22} and *Cap. Hypolytrum*
have taken over. A few
trees, such as *Veitchia*,
Legumin., *Junif.* *curat.* seem
to favor these places or their
edges more than the forest.
Hibiscus is able to establish
itself. In places that
are rather bare *Cigala*
americana has become
well established. Near the
large radio station east of
Yamboo town *Acacia confusa*
has become established. It is
present in other spots but not
thriving especially well. *Leucaena*
seems to be the most aggressive
species now, forming dense pure stands,
producing a carpet of its own seedlings beneath.

Scirvola frutescens and *Boehmeria*
form patches in openings even up to
the tops of the mountains.

Feb. 17 - garden ~~area~~ and
dooryard - around village
black cinder soil

31558 *Ocimum basilicum*?
cultivated

~~58 *Cosmos sulphureus*~~
~~cultivated~~

59 *Cosmos sulphureus*
cultivated

60 *Ipomoea elegans*
cultivated

61 *Gomphrena globosa*
cultivated

62 *Celosia argentea*
cultivated

63 *Cassia alata*
cultivated

64 *Pithecellobium dulce*
occasional, planted

65 *Catharanthus roseus*
common, cultivated and escaped

66 *Datura*
one plant in garden

Feb. 17 - trail around south
side of island, coastal
strip, a strip, mostly
10-20 m. above sea, backed
by cliff or steep slopes.

67 *Pheliphaea compacta* Hoch.
common locally where strip
is, almost at beach level

68 *Paspalum conjugatum*
common along trail

Slope, a plantation of *Coconut*
ex. forest in narrow + mostly *Coconut*
+ some forest near top of peak on S. side.

pleasant, a ornamental
herb; stems, bracts, calyxes
maroon; corolla greenish
white.

flowers brilliant orange.

coarse herb 0.8 m. tall;

rays ~~are~~ crimson.

heads ~~are~~ magenta; bushy
branching herb.

herb over 1 m. tall,
tops of spikes magenta.

shrub 2 m. tall; flowers
deep yellow.

sterile shrub 2.5 m. tall.

suffrutescent herb 0.6 m.
tall, flowers magenta.

shrub 1 m. tall, flowers
deep purple, fruit green.

planted to coconuts, with
thick undergrowth of
Pipturus, ~~for~~ *Terna*,
young coconuts, ferns, etc.

shrub or small tree 3-4 m.
tall, flowers red in center,
petals pink distally.

forming dense patches

- 31569 *Hibiscus tiliaceus*
occasional, especially along
near sea level
- 70 *Euphorbia variegata*
occasional
- 71 *Cyrtosperma cyperinus* (Retz.) Bur.
one plant seen on cinder
bank near trail
- 72 *Eragrostis amabilis* ^{*tenella* (L.) Beauv.}
occasional on bare cinders
along trail
- 73 *Desmodium triflorum*
common along trail
- 74 *Colubina asiatica*
occasional around base of cliff
- 75 *Cyrtosperma javanicum* Houtt.
occasional along trail
- 76 *Xanthosoma sagittifolium* (L.) Schott
planted occasionally
- 77 ~~*Cordia*~~ *oppositifolia* (Lam.) ~~Thunb.~~
common tree, especially
near base of cliff
- 78 *Casuarina equisetifolia* L.
common tree, especially
on cliff and bluffs
are looking over
- 79 *Pteris quadraurita* Retz.
common everywhere
- 80 *Hedyotis biflora*
occasional in trail
- 81 *Zoysia tenuifolia*
common abundant locally
- 82 *Portulaca oleracea* L.
occasional along trail

sterile shrub 3-4 m. tall.

shrub 2 m. tall
of lowling when at most
leafless, flowers scarlet.
tuft

sp. casting tufts

prostrate; sterile.

semi-scandent shrub;
sterile.

small tufts leaves
glaucous.

herb 2 m. tall; leaves
glaucous beneath, stiff above.
4 m. tall; flowers
white, very fragrant;
fruit mostly immature.
tree 10 m. tall.

prostrate; flowers white.

forming dense turf
in open places.

spreading; fleshy.

- 31583 *Lactyloctenium aegyptium*
common along trail
- 84 *Lepturus repens* var. *repens* Forb.
one small patch on top of
bluff over ocean
- 85 *Ricinus communis* L.
very local in plantation
- 86 *Pipturus argenteus*
dominant plant in understory
- 87 *Cenchrus brownii* R+S.
common along trail
- 88 *Capsicum frutescens* L.
common generally
- 89 *Crotalaria* ~~*maculata*~~ *qualitida* det.
abundant in opening, and
along trail
- 90 *Carica papaya* L.
common generally
- 91 *Morinda citrifolia* L.
common generally in understory
- 92 *Polypodium scolopendria* Burmf.
abundant in understory
- 93 *Xyris solepis* hi *antula*
abundant locally in understory
- 94 *Hyptis pectinata*
common along trail
- 95 *Pseudelephantopus spicatus*
rare along trail
- 96 *Achyranthes aspera*
local along trail
- 97 *Hedyotis foetida* var. *marianensis*
local on ~~bluff~~ of great broken lava rocks

- sp. radiating tufts
- sp. radiating, matted.
- shrub 2.5 m. tall.
- shrub 3 m. tall.
- fruits scarlet, flowers
pale green.
- erect suffrutescent herb
2 m. tall; flowers yellow
with brown lines.
- erect herb or tree, 3 m. tall (up to
10 m.), ♂, flowers cream yellow.
all seen were of weedy variety
with very small fruit.
- shrub 2.5 m. tall, leaves
glossy.
- rhizome prostrate, prostrate
erect.
- rhizomes and prostrate erect.
- aromatic herb 1.5 m. tall.
- erect, flowers purple.
- shrub 0.6 m. tall, foetid when
broken; flowers white.

- 31598 *Leucaena* *amarantifolia*
on bluff of great broken lava rocks
- 99 *Callicarpa candida* on
common on bluff of great lava rocks
- 31600 *Polyscias* *reluctans*
rare, on ledge of lava cliff
- 01 *Eugenia reinwardtiana*?
rare, on bluff of great broken lava rocks
- 02 *Tournefortia orientalis* var. *argentea*
common generally
- 03 *Mitrasacme* *multiglandulosa*
common generally
- 04 *Vigna marina*
common generally,
especially near water.
- 05 *Opuntia* *compressa*
common generally
- 06 *Digitaria ciliaris*
local in open places along trail
- 07 *Scaevola taccada* L.
one tree seen with buds
collected, sterile, common, perhaps different
on sea cliff
- 08 *Phyllanthus marianus*
very local near shore & edge
- 09 *Portulaca sarothra* var. *lobata*
rare, one tree, colony seen
on ledge of tuff cliff
- 10 *Leucaena* *diversa* (Forst. f.) Sw.
occasional, on tuff cliff
- 11 *Asplenium nidus* L.
common generally, in crevices
on tuff cliff

scandent shrub climbing
over other vegetation, if leaves
green, fruit becoming pink.
erect shrub, flowers purple.

shrub 1 m. tall, flowers
white.

tree 5 m. tall, ripe fruit
maroon

tree 6 m. tall, fruit mostly brown,
sometimes pendulous.

vine climbing in trees

prostrate, forming
low mats, leaves, creep.
spreading & ascending.

small tree 3 m. tall
buds only.

erect shrub, 2 m. tall,
fr. clad. 1 m. tall.

erect, spreading, sterile

erect, spreading, ascending

- 1111 *Pisonia lineata*
common, especially
around bases of cliffs
- 13 *Wedelia biflora*
abundant in open places
and under trees near edge
of strip
- 14 *Emilia sonchifolia*
common locally, along trail
- 15 *Raychoetia mariana*
common generally in undergrowth
- 16 *Alnus* ~~presertensis~~
common, tangled in trees
- 17 *Cycas* ~~ambigua~~ *ventricosa*
common, climbing in
other vegetation

Feb. 17 canyon on east side
of island

deep gorge cut in scoria

- 18 *Alcaeus macrophylla* (L.) Kuhn
common in gorge bottom
- 19 *Boehmeria*
common on walls of
gorge
- 20 *Piper* ~~guianense~~
common on bottom of upper
part of gorge
- 21 *Peperomia*
common on vertical scoria walls
- 22 *Asplenium unilaterale* Lam.
common locally on scoria gorge
- 23 *Argiopteris erecta* (Frst.) Hoffm.
occasional in upper gorge bottom

scrambling tree; figs immature

scrambling herb,
forming low tangles,
or sinuous, color when broken
to very yellow.

small tree 4 m. tall.
flowers white; fruit red when ripe.
vine

extensive vine; flowers
pale yellow, anthers faint
slanting to base.

High slopes all mixed with forest
in ravines and canyons.

petiole, large purple,
leaves glaucous green, erect.
shrub 1 m. tall, leaves
rigid.

shrub 2 m. tall, narrow hat
aromatic, spikes erect, white.

fls. white, spikes erect.

climbing

plants climbing 10-15 m. long, 2-3 ft.
trunk, from erect base, climbing 10-15 m. tall.

- 31624 Bolbitis
~~common~~ *in upper part of gorge*
 common on banks in upper gorge bottom
- 2 25 *Hypolepis*, *Clenitis subglauca*
 occasional on banks in upper
 gorge bottom
- 3 26 *Allyrium*
 rare on scoria cliffs
- 1 27 *Troscirtia*
 common in upper part of gorge
- 1 28 *Micranthus floridulus*
 dominant in upper part of gorge
- 1 29 *Micranthus micranthum* var. *micranthum*
 rare in upper part of gorge
- 1 30 *Epilobium biflorum*
 rare on scoria cliffs
- 1 31 *Agrostis marianae*
 common on canyon bottom and
- 3 32 *Psychotria mariana*
 common generally
- 4 33 *Lycopodium Thelypteris pulenta*
 occasional at base of cliffs
- 1 34 *Antennaria alba* (1st fl.)
 common in upper part of gorge
- 1 35 *Trigonotis*
 common in upper part of gorge
- 1 36 *Barringtonia asiatica*
 common on lower part of canyon
- 1 37 *H. nardifolia*
 common in lower part of canyon
- 3 38 *Pinus textilis* Park.
 rare on canyon wall

^{white}
 at tip of fronds leading to
 prostrate, fertile ones, erect.
 rhizome short, erect.

rhizome prostrate, ascending,
 at tip, about 1 m. long.
 rhizome forming a tangled mass, bracts orange,
 leaves eaten as a vegetable?
 large clumps

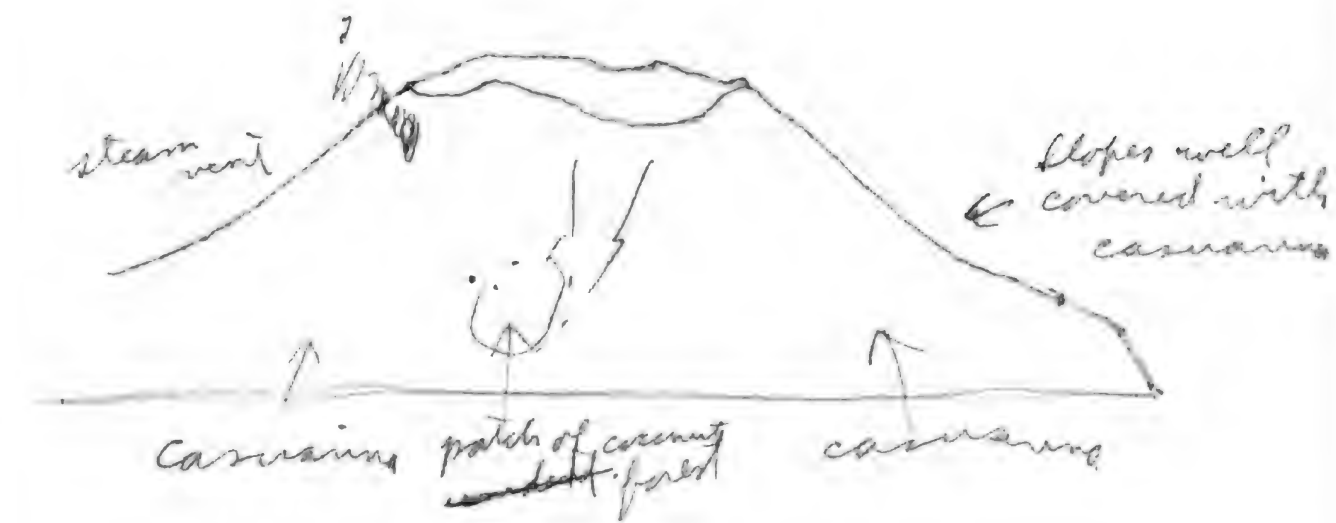
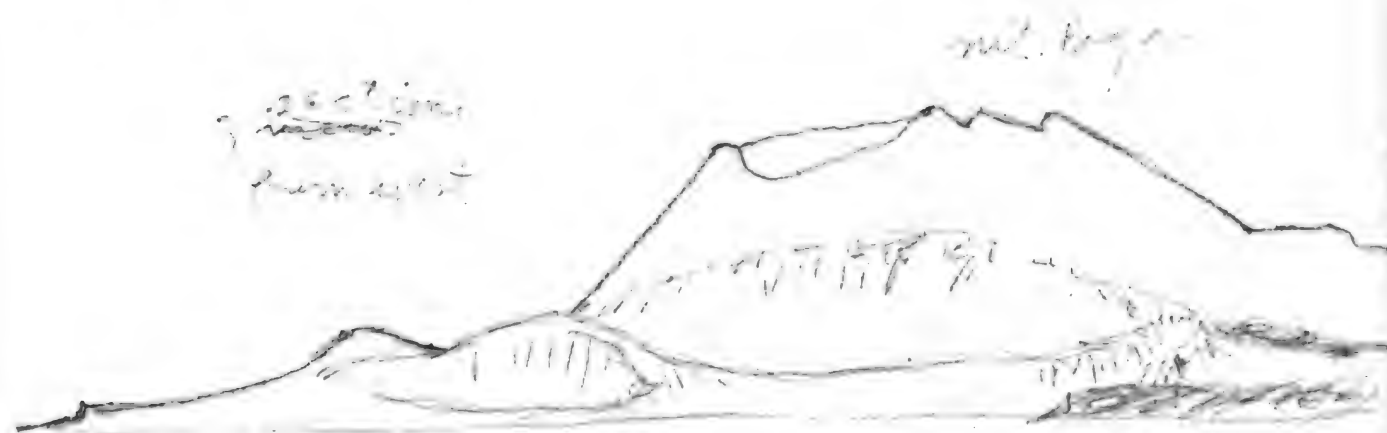
at tip of fronds

small tree 4 m. tall, sterile
 yellow, leaves up to 10 cm. long
 2 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide

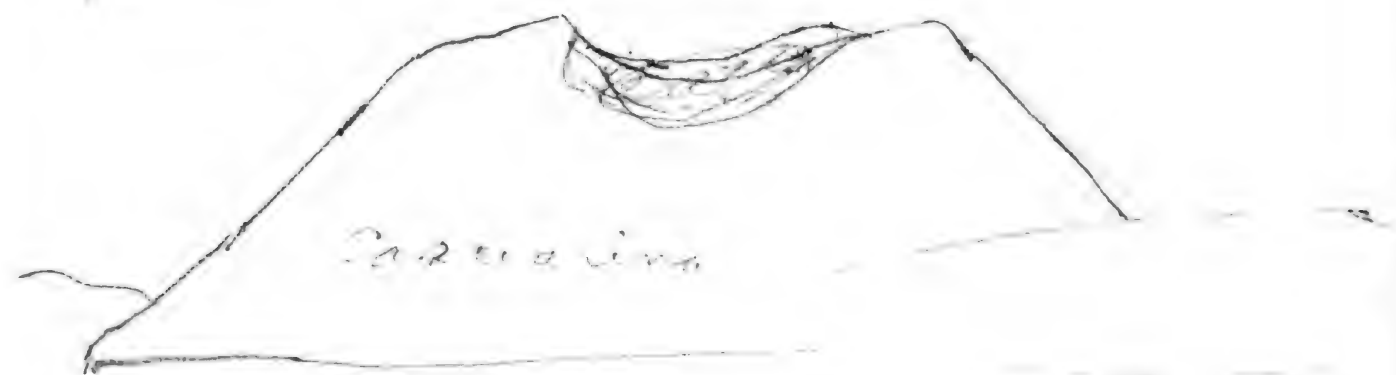
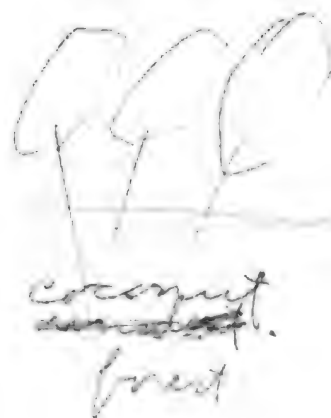
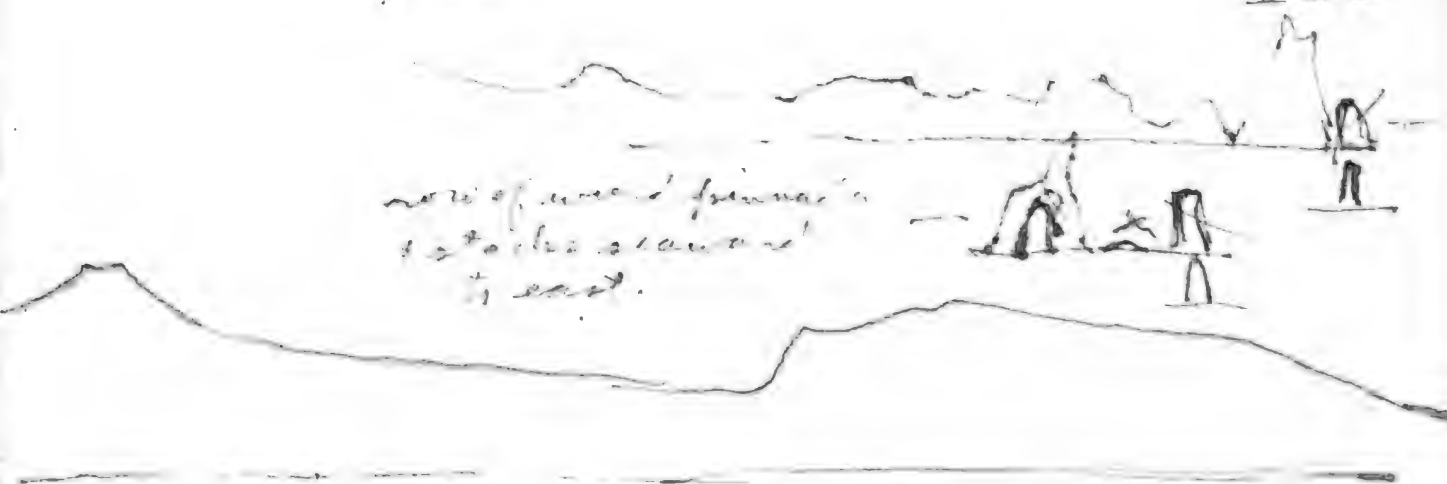
extensive rhizome, 1 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide
 rhizome, 1 m. tall, 10 cm. wide

rhizome, 1 m. tall, 10 cm. wide

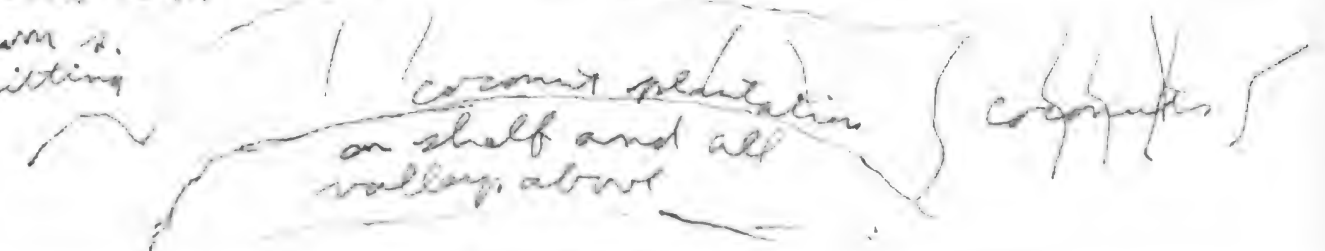
rhizome, 1 m. tall, 10 cm. wide



South end has no forest of any consequence, nor any limestone. High ridges and slopes miscanthus. Cliffs bare or miscanthus. Everything else planted to coconut. S. end. banded buff and lava.



7. section from S. summit



- Feb. 13 roadside near landing
 31639 *Panicum ambiguum* Trin.
 3 rare
 3 40 *Heliotropium*
 occasional

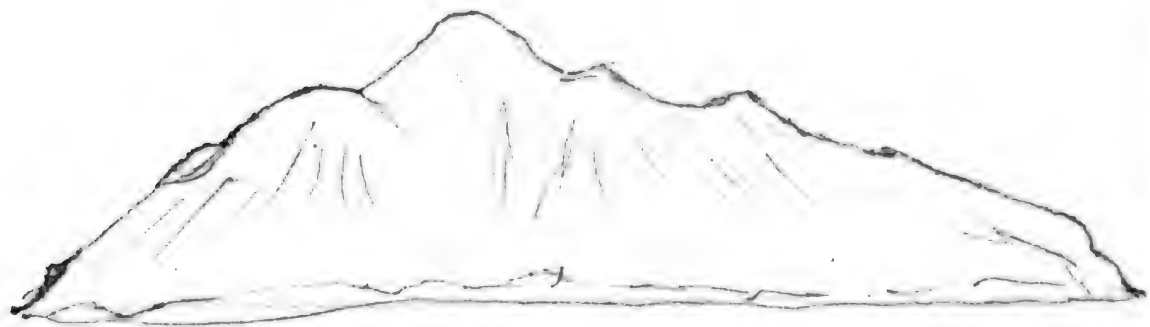
White cliff on east side about
 midway. Not seen closely,
 enough to say if limestone.
 Has dark talus at base.

Cmdr. Gray says a similar
 white layer of hard rock, 2 or
 3 ft. thick inside a str. of
 red. Pagan.

Also says there are about 50
 acres of cotton, with windmills
 B. had fruit also found, as
 well as oranges & bananas.

spreading turf to prostrate

flowers white.



from north

upper slopes mainly *Miconia*
Lower slopes mainly wooded.
wooded ravines running far
up on upper slopes. Middle
slopes of main volcano have
sparse low woody vegetation

Feb. 12 - Around Parido Village
in open coconut plantation
and gardens

21641 *Cyperus javanicus* Houtt.
occasional on open slopes
above ocean cliffs.

2 42 *Portulaca oleracea* L.
~~occasional~~ common on cliffs above sea

1 43 *Callicarpa candicans*
rare on sea cliffs

2 44 *Eragrostis amabilis* Tenella
occasional on open ground
at top of bluff

2 45 *Sporobolus caprae*
common on sea bluffs

1 46 *Casuarina equisetifolia* L.
only seen on sea bluffs

Gently sloping peninsula
to north is a long
lava flow apparently
originating at the base
of the main volcano.

It is covered by a vegetation
of *Pipturus*, *Ficus tinctoria*,
Melanolepis, *Ribicaria*,
Vitaceae, *Claoxypus* (most
common toward head of
flow), *Morinda citrifolia*,
Psychotria mariana, etc.
with sparse undergrowth
Polypodium - *nidus* & *Polypodium*
sclopetaria abundant
under trees.

small tufts, leaves dull
gray-green.

fleshy, prostrate to ascending,
sterile shrub.

spreading tufts.

prostrate, flowers purple.

tree 4 m. tall, sterile.

- 31647 *Thespesia populnea*
a few small trees on top of sea bluff
- 48 *Euphorbia hirta*
common weed in garden
- 49 *Vernonia cinerea*
common weed in garden
- 50 *Phyllanthus ~~viridis~~ amarus* Schum. & Th. det. G.L. Webster, 1955
common weed in garden
- 51 *Eleusine indica* (L.) Gaertn.
common weed in garden
- 52 *Catharanthus roseus*
abundantly cultivated
- 53 *Amaranthus viridis* L.
abundant weed
- 54 *Solanum escholtzii* Lam.
sparingly cultivated
- 55 *Canavalia ~~microcarpa~~*
Feb. 13 - forest on lava flow
- 55 *Canavalia ~~microcarpa~~ megalantha* Merr. var.
occasional in forest
- 56 *Ficus tinctoria* Forst. var. *neoboulana*
common in forest
- 57 *~~Neoschima~~ oppositifolia* (Lam.) Forst. f. det. K. Schum.
occasional in forest
- 58 *Hibiscus tiliaceus*
common in forest
- 59 *Polypodium scolopendria* Burm.
abundant on lava in shade of forest
- 60 *Asplenium nidus* L.
abundant on lava in shade of forest
- 61 *Mniocitriifolia*
common in woods and in plantation

shrubby tree 3-4 m. tall.

stems ascending.

flowers purple.

erect.

supinate at base to 0.7 m.
tall, flowers orange
(white for males seen)
prostrate or weakly ascending

large, much branched shrub;
flowers lavender, fruit
mature.

vine climbing in brush;
fruit green; bud purple.
small scraggly tree;
sterile.

tree 6 m. tall, fruit green.

small tree 6 m. tall, very
crooked stem.
rhizome prostrate; fronds erect;
fertile over almost all of plant old.

scattered, fronds ascending to erect,
fertile ones with fertile part frayed.
small tree 3-4 m. tall, leaves
glossy, flowers and fruit, white.

- 31662 *Guamnia marianae*
one small shrub seen in forest
- 63 *Melanthera multiflora* var.
one of commonest trees in forest
- 64 *Psychotria marianae*
common in forest
- 65 *Pilea quadricarinata*
common locally in forest
- 66 *Pipturus argenteus*
abundant in forest, dominant
- 67 *Pipturus*
one small plant, seen on edge of forest
- 68 *Capriocarpus frutescens* L.
common along trail in forest
- 69 *Frema orientalis* var. *argentea*
common in forest on light part of the
- 70 *Lobelia lithosperma* (L.) Sw.
occasional in forest on rocks,
especially near upper part of flow
- 71 *Erythrina variegata variegata*
occasional in forest
- 72 *Blechnum brownii* f. *puberulum* Leonard
abundant along trails and
in plantations. Forcing almost
pure stands on ground cover.
- 73 *Randia nobilis* (Hillebrand) Merr.
common in forest
- 74 *Pipturus*
occasionally epiphytic on trees
in forest near head of flow.
- 75 *Clitorea sinensis*
common locally in forest

tree 3 m. tall

small tree 6 m. tall, young
fruits mostly greenish brown.
shrub 2 m. tall, flowers
white, fruit red when ripe.
rhizome short, erect.

small tree 5 m. tall, fruit
white, fleshy.
vine climbing over trees, stems,
leaves ~~pubescent~~ pubescent.
erect, pubescent shrub, flowers
pale green, fruit red.
small tree 6 m. tall, ripe
fruits almost black.
small tuft, culms arching
fruit white.

tree with very ascending
branches, flowering when
leafless, flowers scarlet.

shrub 3 m. tall, flowers
white, fruit red.
fleshy, succulent leaves.

semi-scandent shrub,
fruiting portion leafless.

- 31672 *Passiflora* ~~sp.~~ *sp.*
 5 climbing on tree trunk, 10 m.
 1 77 *Ternstroemia* *marianensis*
 on branch of *Clusia* tree
 78 *Freziera* *fontinalis*
 7 79 *Freziera*
 5 80 *Freziera* *obtusifolia* A. Br. (Oleaceae)
 isolated tree on grassy slope
 5 81 *Pouteria* *obovata*
 common in edge of forest
 1 82 *Hedyotis* *fontinalis*
 rare on lava ridge in open
 5 83 *Freziera* *micrantha* var. *micrantha*
 on lava ridge
 3 84 *Ficus* *prolixa* var. *subcordata*
 rare on lava ridge
 3 85 *Cassytha* *filiformis*
 rare on shrubs in open lava ridge
 3 86 *Freziera* *fontinalis* (Mitt.) H. B.
 common on open lava ridge
 5 87 *Phyllanthus* *marianensis*
 common on open lava ridge
 3 88 *Ageratum* *conyzoides*
 edge of forest
 3 89 *Cantharites* *scabra* *scabra*
 edge of forest, on grassy slope

roots flat, green, fruit and
buds green.

Fls. by

fruit green, buds green.

small tree 5 m. tall,
leaves green.

small tree 5 m. tall,
leaves gray.

shrub 1.5 m. tall, leaves
green, reddish when dry.
shrub 1.5 m. tall.

figs shrub 1 m. tall,
almost leafless; figs green.
green, leafless, ranging red;
flowers white, fruit green.
spreading shrub 1 m. tall;
flowers white.
erect shrub, unbranched,
1 m. tall.

winning vine.

Feb. 10 coconut plantation,
cleared & only few of trees.

31690 *Amaranthus dubius*
common weed

91 *Malvastrum corradellianum*
occasional weed

92 *Citrus aurantifolia*
thicket in plantation

93 *Nicotiana glauca*
planted in clear places
under coconut trees

94 *Xanthosoma sagittifolium* (L.) Schott
commonly planted under
coconut trees

95 *Abrus precatorius*
common weed generally

96 ~~Ipomoea~~ *Stictocardia campanulata*
common under trees

97 *Barringtonia asiatica*
occasional

98 *Carica papaya*
abundant weed generally

99 *Nephrolepis hirsutula*
common locally

31700 *Triumfetta semitriloba*
one much transplanted plant seen

01 *Paspalum frutescens*
one plant seen, planted.

02 *Lida acuta* L.
uncommon

erect herb up to 1 m. tall
(note difference in spininess)
herb 1 m. tall, flowers
orange-yellow.

small tree, strong
lemon scent when broken;
flowers white, very fragrant.
erect herb 1 m. tall, smaller
limb pink.

up to 1.5 m. tall, leaves
dull, glaucous, especially
beneath. "brotulu" (Hondulu?)
cultivated for edible rhizome.

vine, very tough stem,
climbing in trees and
shrubs, flowers purple.

vine, extensively creeping,
flowers purple.

small tree, 5 m. tall, sterile.

unbranched tall up to
6 m. tall, all seen were of
small-fruited wild var.

rhizome and fronds erect.

herb 1 m. tall, flowers yellow.

shrub 0.5 m. tall, flowers
white, ripe fruit red.

herb, much branched, 1 m. tall,
attached by stolon.

Feb. 19



cliffs and ravines with
scrubby vegetation. Some are
light & completely planted to
coconuts. Other slopes grassy
but higher ones on volcano
with very sparse scattered
wood, grass.

The ravines are wooded
with *Ficus tinctoria* and *F. polio*,
ipturus, *Hibiscus tiliaceus*, *Morinda*,
Melanolepis, with occasional
Flammula, *Clatocarpus*, *Pouteria*
toward head. *Persea* and
Abrus are common vines, with
Fragaria toward head.

Polypodium scolopendria and
Asplenium nidus very common
on rocks under tree forest.

not much other undergrowth
Walls of ravines, cut in
coarse granular ash or cinders,
tend to be vertical.

Steris less common.



There are many rocks.
Just above rocks on talus,
where there is talus, is a
thicket of *Hibiscus tiliaceus*
that at most depicts penetration.

Cliffs and top of beach covered
by *Sporosa purpurascens* and
Adelia. *Hedyotis* common on
cliffs. *Terminalia catappa* is
common on cliffs & talus, also
Pandanus (these ascend the
mountains too.) *Cassytha*
here and there on cliffs.

Soil in ravine and plantation
tests about pH 7.

No *Passiflora foetida* seen
on Elamagan.

Coconuts planted just
about everywhere where
they could grow. Don't seem to
bear as well (high up).

Triumfetta is the dominant
weed here in plantation. Ground

South end is a high bluff with tremendous recent landslide and great talus slopes at base - ~~quite~~ almost without vegetation, of a tan colored material.

Feb. 19 Vicinity of Asangsong Village

bluffs just above ocean

9-15 m.

- 31703 *Timbristylis cynosa*
crevices in tuff cliff.
- 04 *Pandanus tectus*
occasional on talus and cliffs
- 05 *Pouteria pectinatus*
on talus just out of reach of waves
- 06 *Callicarpa candicans*
on rocks just above waves
- 07 *Hedyotis forsteriana marianensis*
on cliffs, common
- 08 *Wedelia biflora* v. *argentea*
common on cliffs
- 09 *Zoysia tenuifolia*
common carpeting tops of cliffs and ledges.

same - village and plantation

- 10 *Dactyloctenium aegyptium*
in path, common

- 11 *Digitaria ~~bisorensis~~ radicans*
occasional in plantation

small tree or shrub, flowers
dead.

tree 10 m. tall; fruit
green.

tree 3 m. tall, bushy,
fruit green.

shrub, flowers purple

shrub 2.7 m. tall, flowers
white.

scandent herb, flowers
yellow.

forming dense soft turf.

spreading tufts

prostrate

- 31712 *Digitaria* ^{setigera} ~~pruriens~~ var. ~~pruriens~~ ^{pruriens} approaching var. ~~pruriens~~ ^{pruriens}
opening above cliff
- 13 *Digitaria* ^{setigera} ~~pruriens~~ var. ~~pruriens~~ ^{pruriens}
opening above cliff
- 14 *Euphorbia* ~~prostrata~~ ^{thymifolia}
in trail
- 15 *Cenchrus* ~~setaceus~~ ^{brownii} R. & S.
in plantation, occasional
- 16 *Cassia* ~~sophera~~
as in plantation
- 17 *Pachyrhizus* ~~erosus~~
corn row around edges
of village
- 18 *Hypoxis* ~~pectinata~~
common around village
- 19 *Lida* ~~acuta~~ L.
common in plantation
- 20 *Lida* ~~spinosa~~
common in plantation
- 21 *Passiflora* ~~incarnata~~ ^{marianum} DC.
rare in plantation only seen
two young plants seen
- 22 *Operculina* ~~ventricosa~~ ^{ventricosa}
common in plantation in thickets
- 23 *Commelina* ~~benigalensis~~
common in open places in
plantation and village
- 24 *Lida* ~~hornbifolia~~ L.
common about village
- 25 *Benincasa* ~~hispida~~
occasional about village

- Microbachne*
prostrate to ascending
- prostrate to ascending
- prostrate
- erect, ascending
- erect, flowers yellow
fruit white (only one seen)
vine climbing over
other vegetation
- erect herb 1 m. tall, aromatic
flowers whitish.
- erect suffrutescent herb,
1 m. tall, leaves with milky
(with # 31720, no intergrades seen)
erect suffrutescent herb
1 m. tall, flowers yellow
(with # 31721, no intergrades seen)
sterile.
- erect suffrutescent herb, 1 m. tall.
- prostrate, open flowers
lavender, chlorogamous very pale green.
- erect suffrutescent herb, 1 m. tall.
- vine, flowers bright yellow,
fruit very glaucous when
not quite ripe.

- 31726 *Triumfetta semitriloba*
common in village and
dominant weed in plantation
- 27 *Clitoria*
common about village
and in waste spots nearby

same - wooded regions
above village

- 28 *Dolichos lablab*
common in outskirts of village
- 29 *Ricinus communis* L.
common in village
- 30 *Crotalaria pallida* Ait.
~~*var. ovata* Desv.~~
occasional around village
- 31 *Ipomoea indica* (Burm.) Merr.
rare in village
- 32 *Mangifera indica* L.
rare in village, in ravine
- 33 *Ficus tinctoria* or *neobadama*
common everywhere
- 34 *Annona reticulata* L.
rare in plantation
- 35 *Coprosma compositus*
occasional in plantation,
also in forest

erect herb, up to 2.5 m. tall,
flowers yellow.

vine, flowers bright
blue.

vine twining over weeds,
flowers lavender.

erect herb 1.5 m. tall,
flowers green, stigma
reddish.

erect herb 1.5 m. tall,
flowers yellow with brown lines.
vine, flowers pale blue.

tree 6 m. tall, flowers
greenish yellow.

small tree; fruit
yellow, turning red when
when dead - ripe.

tree 7 m. tall, fruit
dark red when ripe.
prostrate, leaves
crisp.

same - wooded ravine
above village, woods

of *Pipturus*, *Ficus*, *Melastoma*, etc.

7/17/36 Artocarpus altilis (Park.) Forst.
several trees in ravine bottom

5 37 *Ficus prolixa* var. *carolinensis*
shrub on wall of ravine

5 38 *Ficus prolixa* var. *carolinensis*
rare in ravine bottom

2 39 *Polyscias grandifolia*
occasional in ravine bottom
and on walls, in undergrowth,

5 40 *Elaeocarpus* ²⁰⁰⁰ ~~gigas~~ ^{branches of}
rare in upper ravine

1 41 ~~*Leucaena*~~ ^{*Neirosperma*} *oppositifolia* (Lam.) ²⁰⁰⁰ ~~Forst.~~
occasional

6 42 *Antleria obovata*
common in upper branches
of ravine

1 43 *Terminalia catappa*
occasional

1 44 *Miscanthus floridulus*
forming dense matted brake
above forest on sides, dominant
plant on open slopes

1 45 *Heteropogon contortus*
to top of vertical walls,
common

1 46 *Fraxinetia reneckeri* Wark.
common in upper branches of ravine

tree 10 m. tall

shrub 3 m. tall, figs green.

large banyan, leaves
very young, figs green, rare.
sparsely branched
shrub 2.5 m. tall.

large rounded tree, 15 m.
tall, ~~figs~~ old leaves, turning
bright red; flowers white;
fruit bright blue, glossy.
tree 6 m. tall; fruit on
ground beneath.

large rounded tree, 15 m. tall;
fruit rare, green.

tree 7 m. tall, leaves almost
all shed, scarlet - picked off ground.
4 m. tall, all seen sterile.

inf. to.

wine, all seen sterile.

same, - village + plantation

31747 *Pithecellobium dulce*

planted in village

48 *Lesmodium triplorum*

base of tree in plantation

49 *Lynedrella nodiflora*

along trail, occasional.

shrub 2-3 m tall

flowers greenish.

prostrate.

~~occasional~~ seed, flowers
yellow.

page	Locality	date	source of H ₂ O	reading
32	Agaña Swamp, Guam	Jan 25	stagnant channel	1.0021
62	Lake Lucero, Saipan	Feb. 3	Lake	0.999
	"	"	"	1.000
	"	"	"	0.9995
	Rain water, Saipan			1.003
	Saipan tap water, Chalan Kanan			

- 31790 *Leucaena leucocarpa* (Mill.) Benth.
 4 common in open areas, especially on both limestone and volcanic soil.
- 4 51 *Euphorbia*
 common in bare spots on volcanic soil.
- 3 52 *Gleichenia linearis*
 common on volcanic soil.
- 2 53 *Phyllanthus*
 common on limestone.
- 1 54 *Glossogyne tenuifolia*
 occasional in bare spots on volcanic soil.
- 3 55 *Heteropogon contortus*
 common on volcanic soil.
- 1 56 *Fimbristylis*
 occasional on volcanic soil.
- 4 57 *Lygodium scandens*
 occasional on volcanic soil.
- 3 58 *Cantharopogon*
 common on volcanic soil.

Bunker (geologist on Taiwan and Tainan survey) says many of limestones on Taiwan are much mixed with volcanic materials, especially detritus deposited when the basalt reefs were formed. This type of limestone

rounded shrub 1 m. tall; leaves leathery, flowers white with purple line on fruit white & fleshy. erect; flowers white.

dwarfed herb, in some spots seen much more luxuriant. erect dwarf shrub; leaves stiff-coriaceous, persistent.

tuft

small tuft

rhizome underground, fronds tangled. small plant with tangled vines, leaves gray-green, especially beneath.

one of the origin of the deep red clay soils on the limestone beds on the e. side of the island. Of course there is always the possibility of detrital deposit of volcanic material on the limestone, then subsequent weathering.

✓ Feb. 22 - Chalan Kanoa
coral sandy bottom of lagoon
in about 1 m. of water

31759 *Thalassia hemprichii*
common

10 60 *Halophila*
common, forming turf

✓ Feb. 23 Koblen Field
3 41 *Indigofera endecaphylla*
on large patch on coral debris

✓ Feb. 23 - San Antonio
roadside

5 62 *Indigofera suffruticosa* Mill.
common

3 63 *Melastrium coromandelianum*
common

✓ Feb. 23 ~~Ata~~ *Ata* above Tanapag
old coral quarry
5 64 *Lyngbya*
common in open full sun
in crevices and on top of rocks

✓ Feb. 23 - ~~Ata~~ ^{Laderan} Tagpochan
a coral limestone ridge
~~is~~ bounded on both
sides by cliffs, culminating
in Agso Tagpochan, 1555 ft.
This ridge is partly wooded
with *Pandanus* (2 sp.), *Aglaia*,
Pisonia umbellifera, *Guamnia*,

rhizome buried; sterile

rhizome buried, fruit
globose. leaves translucent,
venulose.

prostrate herb. forming
a deep mat; flowers red.

shrub. 1 m. tall. flowers
reddish.
branched herb.

rhizome creeping,
slightly buried in
debris.

Ochrosia, *Claoxylon*, *Polyscias*, etc.
The limestone beneath is extremely
rough. *Ipomoea* and *Mucuna*
cover this forest in an immense
tangle. The forest has
been badly battered during
the war, and presents an
extremely bedraggled appearance.

The top is plateau like, but in the form of terraces, with grassy areas, probably former farms, on them, and much was construction, especially on the topmost plate.

The top is open on the windward (east) side, and covered with *Miscanthus*, growing on bare limestone. The soil around its roots tested bet. pH 7 and 7.5. None of its common associates were present. *Phyllanthus marianensis*, *Dryopteris guthriei*?, and several weeds grow with it. The stand is quite

ridge ~~west~~ north of peak

- 31765 *Antigonon leptopus*
planted around dwelling
- 6 66 *Hippobroma longiflora*
roadside weed

- 2 67 *Alocasia*
colonies in edges of forest

thick. Little black wasps and large black ants were present.

It will take the forest here some time to regain its normal condition. It also shows evidence of considerable battering from wind. It is fairly penetrable, except for the rough substratum, the sharpness of which is concealed by vines and, in openings, grass.

Snails (*Adiantum*) are common, but live ones few in comparison with dead ones, and with numbers observed in 1946.

Kod. roll 9

vine with rose-pink flowers.

Herb, stem prostrate, ascending near tip, up to 2.2 m. long, fl. white, stems up to 1 m. tall, leaves up to 4 dm. long, petioles deep purple, leaves clear green, spathes pale green, darker in closed lower part, spadix buff, white in flowering part, turning pinkish, odor somewhat bad.

page.	Locality	date	time	wet b.	dry b.
	Magasin / Lab. Jan 21		8:20 a.m.	77.5	82
	"	"	"	76	82
	"	"	"	76	81.5
16	Bigoj	"	1:10 pm	80	88
16	"	"	"	78.5	84
	"	"	"	78	83
	"	"	1:15	78	85
	"	"	1:20	79.5	85.5
24	Guam	J. 24	11:45	79.5	96
	"	"	"	80	87.5
	"	"	11:50	76	85
	"	"	"	78.5	85
	"	"	12:15	78	88
26	" coral pit	"	3:40	76	86
	"	"	"	77	86
	" Keadw. Fante R.	26	3:45	76	85
				75	81.5

inside BOF.

path of BOF exposed to sun breeze
outside, broken sunlight, no breeze
sparse coconut pl. 0.5 m. from
ground

ground under coconut trees
" " Wedelia

Open sun + wind. Heat high
sparse coconut pl. 0.5 m. from g.
full sun

in shade in undergrowth of thicket
same, deeper in thicket.

" broken sun in thicket
full sun and breeze

full sun, open.
in sparse jungle on limestone
Waist high in reed brake
ground level in reed brake

- 31768 *Disocalyx*
in edge of forest in undergrowth
- 69 *Disocalyx*
in edge of forest in undergrowth
- 70 *Claoxylon*
in forest, rather common
- 71 *Petrosia oppositifolia* (Lam.) K. Schum.
common in forest
- 72 *Youngia japonica*
common on coral along road

upper peak and vicinity
large area of *Thysanotus*
with patch of forest
on lower slope

- 73 *Centella asiatica*
common on base coral of peak
- 74 *Dryopteris*
in rock crevices on peak
- 75 *Bidens pilosa* L.
on rock trail on peak, common
- 76 *Dryopteris*
on base coral ridge
- 77 *Miscanthus floridulus*
dominant in large limestone
area on east (windward) side
of peak
- 78 *Pisonia umbellata* L.
common in forest on west (leeward) side

- shrub 1 m. tall, flowers
coral red, lobes firm,
somewhat fleshy.
- shrub 1 m. tall,
fruits mostly immature,
ripe ones bright red.
- shrub, 1-2 m. tall,
leaves smooth.
- small tree, flowers
white, fragrant.
- flowers yellow.

rhizome prostrate

climber, 2 m. tall

small tree 6 m. tall, wood
very soft, leaves small,
fruit immature, or subter-
very sticky on ridges.

- 31779 *Polygala grandifolia* Vahl.
common in forest
✓ 80 *Mucuna*
common in forest

- ✓ Feb. 23 - Garapara
around old warehouse
on flat coral sand and rubble
81 *Pluchea odorata*
occasional
82 *Catalpa longissima*
occasional, planted?

small tree 3 m. tall,
fruits turning purplish.
woody liana
climbing over trees,
flowers pale green.

shrub 2 m. tall, aromatic;
flowers dull pale lavender
tree 5 m. tall, lower
thrust purplish with yellow ridges,
white; fruit pendulous.

196

1950

197

198 1950

199

殺菌整腸剤 「ナンポール」

「ナンポール」はツクサ科に属する熱帯植物の有効成分を抽出したるものにして微かに芳香性弱酸味を有する帯紫紅色のアントシアニン色素糖質を濃厚に含有する製剤なり。
「ナンポール」の全成分は未だ審かならずとも既に数年の臨床實驗と幾多の製理試験とに依り薬効の正確鋭敏なる即効は臨床家として常に驚嘆せしむるところにして而も何らの副作用なきは明白に立證せられて居る。
強烈なる殺菌性を有するを以て細菌性下痢即ち夜痢・赤痢・チフス等の如き熱性下痢に對し本剤の投與は眞に適切にして普通一時間乃至二時間にして自覺症狀及び客觀症狀を消失し、明確に治癒の轉機を認めるに至る。又結核性下痢にも連続服用により著しく効力を現はす。

適 應 症

1. 夜痢、赤痢、腸チフス、パラチフス、その他腸熱性下痢。
1. 肉類、魚貝類、其他食物中汚性菌類下痢及蒸瘍疹。
1. 乳児の慢性急性及慢性腸加答兒及結核性下痢、忌阻。

用 法 及 用 量

1. 「液剤ナンポール」は一日三回一開錠（20cc アンプル入）、乳幼児は半量宛空腹時に服用し場合に依りては同一量服用するも差支へなし。
1. 「錠剤ナンポール」は一日三四錠宛、乳幼児は半量宛空腹時に投与湯にて服用す。
1. 「液剤ナンポール」「錠剤ナンポール」共に（若干の砂糖、シロップを和して服用するも可）指狀に依り食間に數回服用し又同時に多量を服用するも副作用無なり。
但普通液剤は一アンプル、錠剤は四錠にて充分其の効果を舉るを常とす。

使用上の注意

1. 胃酸過多症に起因する下痢には効力薄し。
1. アルカリ性薬物即ち重曹、マグネシヤ、碳酸アルミ、吸着劑カーボン活性白土等は化學的變化或は物理的變化を起して効力を減退せしむるを以て「ナンポール」服用の前後二時間……三時間とは之等の藥劑の服用を禁す。
1. 本剤服用の場合は下痢として「ヒヤシ油」その他の種下痢を用ゆる必要を認めず。且つ之等の下痢を使用せざる方が恢復を早め結果に於て極めて良好なり。

内 容

〔液剤ナンポール〕

ロニオ・デイスカラ・ハンス抽出液			
99.87(%)			
酒	石	酸	0.05
安	息	香	0.05
尿	素		0.03

〔錠剤ナンポール〕

ロニオ・デイスカラ・ハンス濃厚エキス			
8.70(%)			
酒	石	酸	0.50
安	息	香	0.50
尿	素		0.30
乳			60.00
澱			30.00

包

液剤ナンポール 20cc アンプル 3 管入

錠剤ナンポール

12 錠入

製 造 發 賣 元

東京都中央区日本橋兜町一ノ四番地(南民社ビル附階)

南 方 薬 品 工 業 株 式 會 社

殺菌整腸剤

「ナンポール」

「ナンポール」はツクサ科に属する熱帯植物の有効成分を抽出したるものにして微かに芳香性弱酸味を有する帯紫紅色のアントシアニン族色素配糖體を濃厚に含有する藥劑なり。

「ナンポール」の全成分は未だ審かならずと雖も既に數年の臨床實驗と幾多の藥理試驗とに依り藥効の正確鋭敏なる即効は臨床家をして常に驚嘆せしむるところにして而も何らの副作用なきは明白に立證せられて居る。

強烈なる殺菌性を有するを以て細菌性下痢即ち疫痢・赤痢・チフス等の如き熱性下痢に對し本劑の投與は眞に適切にして普通一時間乃至二時間にして自覺症狀及び客觀症狀を消失し、明確に治癒の轉機を認めるに至る。又結核性下痢にも連續服用により著しく効力を現はす。

適 應 症

1. 疫痢、赤痢、腸チフス、パラチフス、その他腸熱性下痢。
1. 肉類、魚貝類、其他食物中毒性腹痛下痢及蕁麻疹。
1. 乳兒の綠便急性及慢性腸加答兒及結核性下痢、惡阻。

用法及用量

1. 「液劑ナンポール」は一日三回一圓宛（20cc アンプル入）、乳幼兒は半量宛空腹時に服用し場合に依りては同一量服用するも差支へなし。
1. 「錠劑ナンポール」は一日三回四錠宛、乳幼兒は半量宛空腹時に微温湯にて服用す。
1. 「液劑ナンポール」「錠劑ナンポール」共に（若干の砂糖、シロップを和して服用するも可）症狀に依り食間に數回連用し又同時に多量を服用するも副作用皆無なり。
但普通液劑は一アンプル、錠劑は四錠にて充分其の効果を舉るを常とす。

使用上の注意

1. 胃酸過多症に基因する下痢には効力薄し。
1. アルカリ性藥物即ち重曹、マグネシヤ、珪酸アルミ、吸着劑カーボン活性白土等は化學的變化或は物理的變化を起して効力を減退せしむるを以て「ナンポール」服用の前二時間……三時間とは之等の製劑の服用を禁ず。
1. 本劑服用の場合には下劑として「ヒマシ油」その他の種下劑を用ゆる必要を認めず。且つ之等の下劑を使用せざる方が恢復を早め結果に於て極めて良好なり。

内 容

〔液劑ナンポール〕

ロエオ・デイスカラ・ハンス抽出液			
99.87(%)			
酒	石	酸	0.05
安	息	香	0.05
尿	素		0.03

〔錠劑ナンポール〕

ロエオ・デイスカラ・ハンス調厚エキス			
8.70(%)			
酒	石	酸	0.50
安	息	香	0.50
尿	素		0.30
乳	糖		60.00
澱	粉		30.00

包 装

液劑ナンポール 20cc アンプル 3 管入

錠劑ナンポール

12 錠入

製 造 發 賣 元

東京都中央区日本橋兜町一ノ四番地(商況社ビル四階)

南方藥品工業株式會社

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